DOCUMENT RESUME

ED 379 925 FL 022 769

AUTHOR Dildine, Dana E.
TITLE Spelling Acquisition in the Elementary ESL Classroom.
PUB DATE May 94
NOTE 147p.; Master's Thesis, Arizona State University.
PUB TYPE Dissertations/Theses - Masters Theses (042) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS Cognitive Processes; *Data Interpretation; Educational Research; Elementary School Students; *English (Second Language); Error Analysis (Language); *Error Patterns; Grade 6; *Interference (Language); Intermediate Grades; Learning Processes; Native Speakers; Phonology; *Second Language Instruction; *Spelling; Spelling Instruction; Teaching Models

ABSTRACT

Based on results from research on children's spelling, it has been established that spelling errors produced by ESL students in this study of 6th grade students parallels the errors of native speakers of English in the same classroom. The ESL students are also impacted by cross-linguistic influence of the phonology of their native tongue. This data is interpreted to support a cognitive-developmental model of spelling acquisition in ESL and native speakers of English. Results of the study show English spelling acquisition for ESL students to be a developmental process similar to native speakers of English. (Contains 66 references.) (Author)

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ED 379 925

Spelling Acquisition in the Elementary ESL Classroom

by

Dana E. Dildine

An Applied Project Presented in

Partial Fulfillment of the Requirements

for the Degree of Master in Teaching English as a Second Language

ARIZONA STATE UNIVERSITY

May, 1994

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ACKNOWLEDGEMENTS

I would like to recognize my committee members, Dr. James Ney, chair; Dr. Sarah Hudelson; and Dr. Phyllis Garcia for their patience, understanding, and support in the completion of this project.

A special appreciation goes to Dr. Sarah Hudelson, who accepted me as one of "her flock" even though I have never taken a class from her. Dr. Hudelson, thank you for sharing your knowledge about the subject of this paper, your time, and most of all your tactful, but honest advice to guide me through this project.

I also wish to acknowledge the support system where I teach--my principal, Toni Preis; my team teacher, Carol Trimboli; the ESL/Bilingual Staff; and my loving students. The backing, the "listening ear," the encouragement, and cooperation was greatly appreciated.

I am most grateful to my loving husband, David, who not only listened and encouraged; but "picked up the slack" at home, did without, and showed he loved me through it all.

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ABSTRACT

Based on results from research on children's spelling, it has been established that spelling errors produced by ESL students in this study of 6th grade students parallels the errors of native speakers of English in the same classroom. The ESL students are also impacted by cross-linguistic influence of the phonology of their native tongue. This data is interpreted to support a cognitive-developmental model of spelling acquisition in ESL and native speakers of English. Results of the study show English spelling acquisition for ESL students to be a developmental process similar to Native Speakers of English.

CHAPTER ONE

INTRODUCTION

Standard spelling of the English language appears to come easy for some students and for others it appears to be very difficult. Observation of students in the classroom shows that the ability to memorize lists of words for a spelling test every week does not make one a good speller nor does it assure that the same words that students tested 100% on in last week's spelling test they would be able to write correctly in their regular writing the following week.

Spelling appears to be a cognitive skill in which children's knowledge of word patterns and their intuition of linguistics as it relates to orthography form their reasons of how to spell words, especially words they have not been taught. This cognitive skill or knowledge of spelling seems to be based on the child's experience with written and spoken language and their own brain's ability to conceptualize patterns and reasons why to place letters in a specific orthographic order. This cognitive orthographic skill appears to be crucial to the acquisition of spelling. According to current research

(Gerber, 1984; Goodman, 1990; Invernizzi & Worthy, 1989; Morris, Nelson & Perney, 1986) every student seems to be at a different stage of cognition of language and ability to spell their language.

The latest spelling research (Bear & Barone, 1989; Henderson, 1991; Templeton & Bear, 1992) delineates the theory and research of Read (1971) and Henderson (1980) regarding the developmental stages of learning to spell. This same body of knowledge is beginning to inform and shape instruction while also providing a framework to analyze student's progress in becoming a conventional speller. Although these five basic stages of spelling development (See Figure 1) are a great breakthrough in spelling theory and instruction, teachers still are in need of an easy method to further understand and categorize a student's specific spelling knowledge or at least strategies students use within the framework of the developmental stages of spelling.

Though research has been done on the development of spelling in other languages; in learning disability students, in gifted students, and in regular ed of native speakers of English; little qualitative research has been done on English as a Second Language student's spelling.

Figure Caption

Figure 1. The five basic stages of spelling development and their definitions as described by Bear and Barone (1989), based on the Henderson model (1980).

Preliterate Stage. The Preliterate Stage is characterized by the student writing numbers, letters and even pictures for words. There is no clear correspondence between what is spelled and how the word is pronounced. The teacher cannot read the word, nor can the child, evidencing no clear understanding of letter-sound correspondence.

Letter Name. Sometimes this stage also includes what is termed as prephonetic spellers or early letter name stage when students spell words using the key sounds, but omit most vowels. Examples would include *RUDF* for "*Are you deaf*" or *B* for "*bed*". Later in this stage the first and last sounds of each word are represented, i.e. *BD*.

Students in the regular Letter-name Stage have usually mastered consonants, and some consonant blends and digraphs. These students have begun to work more consistently with vowels and may still omit some vowels but by the end of this stage has a vowel in each

syllable. An example would be the word "*time*", spelled *TIM*. The students may or may not omit the preconsonantal nasal as in "*bump*".

Within-word Stage. These students have mastered regular short vowel patterns, but are still experimenting with the long vowel marking system. They begin to include rules for marking long vowels; the silent e and the vowel digraph (*ai, oa*). Examples would be "*float*" as *FLOTE* or *TRANE* for "*train*".

Syllable Juncture Stage. Now the student has stabilized on short and long vowel single syllable word patterns and is beginning to experiment with how syllables combine. Consonant doubling is a principle they struggle with, like the examples *CATEL* or *CATLE* for "*cattle*" and *POPING* for "*popping*". Students begin the mastery of simple affixes (*-es*) anad begin to experiment with less frequent patterns like *-tion*.

Derivational Constancy. During this stage students are beginning to examine the morphology in terms of roots or realizing the relationship between spelling and meaning. The *EA* in "*pleasure*" is spelled correctly because of its relationship to "*please*."

The purpose of this study was to investigate the spelling development and patterns in ESL (English as a Second Language) students as compared with native speakers of English. This study took place in a 6th grade heterogenous classroom at the Bicentennial North Elementary School in Glendale, Arizona. Conclusions aree based on an in-depth analysis of patterns found in the student's spelling errors and in the student's correct standard spelling.

The hypothesis was that ESL students will follow the same developmental pattern of spelling acquisition as research has shown for the native speakers of English, but will also be impacted by the phonology of their native tongue. Thus ESL students should progress along the basic stages of spelling development in the Henderson model (1980).

The researcher also looked for categories within the framework of the currently viewed belief of the developmental stages of spelling. These categories would point to specific orthographic knowledge acquired within the framework of each of the known developmental stages of spelling. This information will make it easier to develop an individual spelling instructional program that

works for all students in this Bicentennial North classroom and perhaps all the different groups of children in public school classrooms in order to assist students in becoming conventional spellers.

These categories of orthographic knowledge within each developmental stage of spelling would be a schema to enable the teacher to group for instruction and to begin to formulate a specific spelling plan to cover the skills that the student still needs to learn on his/her road to becoming a conventional speller. This would prevent wasting precious instructional time teaching concepts or words that the students either already know or are not yet developmentally ready for helping to provide a practical solution to the typical limited teacher planning time available, while still meeting individual student needs.

Chapter Two explores the current viewpoint among researchers regarding the way language is acquired and more specifically, the way spelling is acquired. Much of this theory is based on Jean Piaget's work that began in 1919, but really became accepted by American psychologists in the 1960's as an alternative way to research, called developmental psychology research.

Piaget's reasoning and his logical concept that children learn in general cognitive stages became widely recognized and respected in the 1960's (Henderson, 1985). Although many educator's disagree with Piaget's theories in certain contexts today, his logic spawned Charles Read's (linguist, scholar and former teacher) breakthrough discovery in this new line of spelling research (Read, 1971). Since then educational researchers, such as Gill (1992); Henderson and Beers (1980); Morris, Nelson, and Perney (1986); Templeton (1979, 1980, & 1989); Wilde (1989 & 1992a) etc., have tested and confirmed the generality of these stages of word knowledge across methods of instruction, levels of intelligence, economic status, dialect and even languages (Henderson, 1985).

Chapter Three describes the methodology of the empirical study. It presents the hypothesis of the study in addition to a detailed description of the subjects. Chapter Three also explains the tasks given to the subjects, the instruments, and the procedures used in the collection and analysis of the data.

Chapter Four details the data analysis, the results of the study and a discussion of the findings and how

they relate to the current research.

Chapter Five summarizes the study with some implications for teachers and contains conclusions concerning spelling acquisition, as well as suggestions and recommendations for further research.

CHAPTER TWO

REVIEW OF LITERATURE

Previous research and theoretical work which is relevant to this study of spelling includes: a look at the nature of English orthography; a constructivist theory of language development, including the development of written language; an introduction to the research on children's phonological systems (i.e., their categorization of speech sounds when they write) and how they differ from adults in their spelling; the body of spelling research that has evolved from studying the early invented spelling research and a consideration of stages of spelling according to researchers in the field; native language influence on second language spelling; spelling development in other languages; and other factors to consider when spelling in English.

The Nature of English Orthography

To the learner of the English spelling system as well as to many teachers of the subject and to most people at first glance, English spelling is a mess. Part of the problem with English orthography is that the

alphabet contains only twenty-six letters while the spoken language contains more than forty speech sounds (Hodges, 1981). Also many the English speech sounds are spelled in several ways, such as the "f" sound in *far, phone,* and *laugh* and the "u" sound in *nut, tough, done,* and *blood.* George Bernard Shaw, famous playwright, is well known for his observation that the word *fish* could be spelled *ghoti: gh* as in lau*gh, o* as in w*o*men, and ti as in nat*i*on (Wilde, 1992a).

The realization of this complexity in English spellings has led some educators to suggest that spelling should be learned either by the memorization of extensive lists of words or by the systematic study of a large number of rules about relationships between sounds and the letter symbols. Many writers have tried to completely reform the current spelling system of the English language.

With the advent of the science of linguistics in the twentieth century, another understanding of English spelling became prominent, with three basic linguistic and historical explanations: 1) spoken language changes over time while writing changes very little; 2) the spelling of some words was changed by sixteenth- and

seventeenth-century scribes and scholars who helped to stabilize English spelling with the advent of the printing press; and 3) the English language has borrowed many words from other languages, sometimes retaining both the spelling and pronunciation of the borrowed words, as in *parfait* and *sabotage* from the French and in other cases changing the spelling and/or the pronunciation to fit English patterns, as in *medicine* from the Latin, gymnasium from the Greek, *volcano* from the Italian, and *mosquito* from the Spanish (Wilde, 1992a). These and other historical instances, including "The Great Vowel Shift" (Hanna, Hodges, & Hanna, 1971) make the English sound/symbol correspondence appear to be inconsistent.

Linguists and educators interested in what all this has meant for spelling instruction have gone in search of resolving these questions with new kinds of studies, for example, how many rules and what rules should be taught for children to be able to spell standard English? How much correspondence is there between our phonemes (speech sounds) and graphemes (written alphabet symbols)? Two famous studies during this time used computer technology to show the vast number of speech sounds and rules needed to tell us how to spell those sounds.

The linguist, Venezky, analyzed 20,000 common English words and counted each letter of the alphabet or combination of letters that represented a different sound as a new correspondence. The result was over 300 correspondences or "rules" for relating spelling and sound, referred to as sound/symbol correspondence (Smith, 1984).

Paul Hanna of Stanford University with other researchers, Hodges and Hanna, took a somewhat opposite approach to Venezky's procedure and programmed their computer with over two hundred correspondence rules derived from their analysis of 17,000 common words. They instructed the computer to spell those words (from a phonetic representation of their pronunciation) by using the correspondence rules. The computer was accurate half the time (Smith, 1984).

It was no wonder that past (and some current) "educators have viewed English spelling as arbitrary and unpredictable, a short step away from a nightmare" (Schlagal & Schlagal, 1992). Scholars have weighed and researched the problem, trying through frequency counts and the "grading" of words to determine what words to teach children and when. For such an arduous task, it

was thought spelling instruction must be serious, deliberate, rigorous, and sustained, and spelling errors should never be allowed to pass uncorrected in case bad habits might be formed. It was upon this tenet that our English spelling curriculum and workbooks were based (Schlagal & Schlagal, 1992).

One important element of English spelling appears to be the semantic component, often represented through common root words or stem words, for example the words *medical* and *medicinal*. Although these words differ in stress, vowel quality, and pronunciation of the consonant *C*, they are spelled in analogous ways because they share the same underlying root form. It has been hypothesized that the different pronunciations are due to phonological rules invoked after suffixation (Wilde, 1986). Chomsky and Halle (1968;, C. Chomsky, 1970; and N. Chomsky, 1970) view conventional orthography as very close to being an "underlying lexical representation" of each word, which is then converted into its final phonetic form by phonological rules which are known tacitly by native speakers of the language.

Because we represent the spelling of many words as their sounds were five or six centuries ago, English

spelling is sometimes said to be not phonetic but etymological (Wilde, 1986). Examples to explain this phenomenon are the initial silent letters in *gn-*, *kn-*, and *wr-*, which were once pronounced, as well as the spelling that has been retained previous to the Great Vowel Shift of the fifteenth century which changed pronunciation and phoneme/grapheme correspondences.

The conventions that dominate English orthography emerged over centuries of social and cultural development; the rationale underlying these "decisions" is no longer visible. Learning how the alphabet works can be an immense demand for emergent literates (O'Flahavan & Blassberg, 1992).

Today we realize that English spelling appears to be based on three main components: phonetic correspondence, visual strategies, and morphemic concepts.

Phonetic correspondence includes a knowledge of letter names, knowing that sounds can be represented by symbols and that there are different spelling patterns for the same sound as well as knowing which spelling pattern represents each sound in the English language.

Visual strategies include knowing that symbols are used to write words, that letters are used to write words

in the English language, that there are spaces between words (segmentation), and knowing that there are common spelling patterns in the English language and what they are. Visual abilities also include the subconscious knowledge of which letter combinations are possible and which are not in the English language as well as the skill to draw from a storage bank of words in the memory to know if a word "looks right".

Morphemic concepts include knowledge about word parts, for example knowing how to combine smaller words to spell compound words or how to make new words by adding prefixes and suffixes to base words. Morphemic competence tells the writer that words in the same family will have the same spelling pattern (e.g., sign, signal, signature). Morphemic adeptness also includes using apostrophes for contractions and in the possessive case. Morphemic mastery calls upon knowledge about where the word came from -- words from other languages, derivatives, eponyms, acronyms, portmanteau words, shortened words, etc. (Bolton & Snowball, 1993b).

Previous scholars took more of a surface look at the nature of English orthography and saw only its complexity. Due to the confusion about the true nature of

English orthography and the previous lack of understanding about its three main components, it is easy to understand why "everyone" seemed to be so confused about English spelling, how it is learned, and how it should be taught.

The linguist, Charles Read, changed our more traditional view of spelling in his classic 1971 study of children's phonetic categories.

Read's Research of Children's Phonological Systems

Read's actual intent was to investigate children's phonological systems and how they vary from those of adults, but he also achieved a logical explanation of preschool children's spellings that seem very unusual to adults.

Read applied his psycholinguistic studies of children's own phonetic categories, as he studied the spelling of 32 preschool children, to practical educational issues relevant to reading and spelling. His work has had the most significant influence on studies and beliefs held currently in the field of spelling (Hodges, 1981; Read, 1975; Wilde, 1986).

In his study, Read examined the way children ages

four to eight years old used their awareness of English phonology to spell words. Twenty preschoolers were able to identify and name the letters of the alphabet, but had not yet learned to read. These subjects correlated the letter names to the sounds of words and then "invented" spellings for words that they wrote or produced by arranging movable letters (Hodges, 1981).

Read found that children produce spellings based on their evaluation of phoneme/grapheme correspondences (also referred to as sound/symbol relationships) and that they often represent phonetic properties which are not depicted in conventional spelling (Wilde, 1986).

More interesting, Read also demonstrated that children paired the long and short English vowels in the Old English or European way which is the historical basis for the way we spell these words today (Henderson, 1985). Read's doctoral thesis (1971) showed that when children write English sentences for the first time, their spelling is almost identical to that of the early Saxon, because they spell by letter-name, or take out the salient phoneme from each letter-name and apply it or the nearest one to it to each phoneme they hear in a spoken word (Henderson, 1985).

Maybe even more fascinating was Read's discovery that though these young children misspelled words they all did so in remarkably similar ways (Hodges, 1981). Usually the children spelled the sounds of words with the alphabet letters (or grapheme symbols) whose names were like those sounds. Read called this "the letter-name strategy." The following are examples: *bot* for *boat, fas* for *face, lade* for *lady,* etc. (Read, 1975).

This consistency in emergent literates to begin with a theory of orthography that shows a direct phonetic letter-sound matching strategy has been replicated many times (Beers, 1974; Beers & Henderson, 1977; Read, 1975) and has led us to believe that our brain has something of a "super-phonetic" ability. Children when free of the learned higher level "orthographic overlay" appear to be "natural linguists" (Henderson, 1980).

Perhaps the following linguistic explanations with examples included from Charles Read's 1971 study (shown on Table 2.1) will give the reader a clearer perspective of the relationship of children's "invented spellings" to the science of linguistics.

Vowels

Frontal vowels, described as such because of the

position of the tongue during articulation in the front part of the roof of the mouth, are a clear example of the children's strategy efforts of spelling using the names of the letters. The names of the letters *a*, *e*, and *i* correspond quite directly to the tense vowels (tenseness and laxness of vowels refer to a complex of articulatory properties) in the words *bait*, *beet*, and *bite*. Instinctively children spelled words using a letter name strategy and the phonetic features of the manner of articulation of frontal vowels, but usually without using orthodox tools of conventional spelling such as doubling or final "silent" *e*, to show the tenseness of the vowel (Read, 1971). See examples in Table 2.1.

TABLE 2.1

Vowel examples from C. Read Monograph, 1971

Frontal Vowels					
DA	(day)	LADE	(lady)	TIGR	(tiger)
KAM	(came)	EGLE	(eagle)	LIK	(like)
TABIL	(table)	FEL	(feel)	MI	(my)

Affrication

Looking at an example in consonants, Read showed more confirmation that pre-schoolers' judgements in phonology influenced their spelling. In this case the invented spelling of [*t*] and [*d*] before [*r*] is *CH* and *J*, respectively (see Table 2.2 for examples). These illustrations also have a phonetic basis; the first segments of a pair like *truck* and *tuck* are not identical. Before [*r*] in English, [*t*] and [*d*] are affricated, or released slowly with a resulting "shh" sound. They are articulated in the same place as the stops that we spell *t* and *d*, but in the practice of the palatal affricates [$\widehat{c}$] and [$\widehat{j}$] that standard spelling represents as *ch* and *j* respectively. Looking at it that way, they make up a third possibility intermediate between the two phonological pairs that have distinct standard spellings. Because the affrication before [*r*] is predictable, standard spelling ignores it, using the lexical representations *tr* and *dr*. Apparently, the children perceive the affrications and focus on the place of articulation to determine spelling. Not knowing the lexical depictions, they chose between the known spellings *T/D* or *CH/J* for these intermediate cases.

Consistently the children appear to choose on the basis of affrication, abstracting from the difference in place-of-articulation. They always match affricate [t] and [d] with the affricates that correspond in voicing-- [č] and [ǰ], respectively. Note that this preference is also seen among first-graders and older slower spellers, even those who have done no original pre-school spelling (Read, 1971).

Table 2.2

Consonant examples from C. Read Monograph, 1971

Affrication			
ASCHRAY	(ash tray)	CWNCHRE	(country)
CHRIBLS	(troubles)	JRADL	(dreidel)
CHRIE	(try)	JRAGIN	(dragon)

Flaps

Alveolar flaps, a linguistic term for a tap of the tongue against the alveolar ridge behind the upper teeth to form the sound, are again another instance that shows information about the child's ability for abstract representation. The *D* spelling in the word *"letter"* and

other examples in Table 2.3, represents a phonetically correct realization. There is no contrast between [*t*] and [*d*] when they occur between vowels in English. Both are articulated by a tap of the tongue against the alveolar ridge behind the upper teeth. However, because this sound is voiced, it is closer to [*d*]. The same variation takes place across word boundaries, and the children do not fail to represent it (in the examples of Table 2.3). This time the children are representing a phonetic variation that the standard orthographic system does not. Supposedly they would have no basis for knowing that there is a lexical */t/* in such words. For the word-internal cases, they cannot receive any direct phonetic evidence, because [*t*] never occurs there (Read, 1971).

Table 2.3

More consonant examples from C. Read Monograph, 1971

Alveolar Flaps			
LADR	(letter)	PREDE	(pretty)
WOODR	(water)	BEDR	(better)
AODOV	(out of)	GAD I CHANS	(get a chance)

Nasals

Another popular characteristic of the children's "invented spelling" is the treatment of the nasals [m], [n], and [ŋ], as in *bumpy, end,* and *sing,* respectively. Nasal sounds in phonetics refer to the sounds that are as air vibrating through the nasal passages. Only the first two of these nasal sounds occur in English at the initial part of a word or syllable. When occurring in initial position the children spell them in the usual way (see Table 2.4). Also when these same two nasals are found in final position they receive standard spelling, but when any of the nasals are found in medial position, before another consonant, the children almost always omit it from spelling (see Table 2.4) (Read, 1971).

This approach for spelling the preconsonant nasals is quite the norm and consistently used (almost without exception) for spelling these sounds for all children up to about five, but has also been seen through the beginning stages of independent spelling development for all slower spellers across grade levels. Even though they begin to show the nasal, it is still often omitted, due to the difficulty in perceiving nasals in the medial position. An informal spelling dictation given to 49

first-graders showed this spelling accounted for 15 of the 23 spelling errors of the words *went* and *sent*. Many first-grade teachers have indicated that the omission of preconsonantal nasals is remarkably common and is also seen in *-ing* endings (Read, 1971). See Table 2.4.

Table 2.4

Preconsonant nasal examples from C. Read Monograph, 1971

Preconsonant Nasals					
Initial position					
MARED	(married)			NIT	(night)
Final position					
POM	(palm)			WAN	(when)
Preconsonant nasal					
BOPY	(bumpy)	AD	(and)	WOTET	(want it)
NUBRS	(numbers)	ED	(end)	DOT	(don't)
THOPY	(thumpy)	MOSTR	(monster)	PLAT	(plant)
Suffix *-ing*					
SKEEIG	(skiing)	CUMIG	(coming)	PLAYIG	(playing)

Syllabic Segments

Syllabic segments comprise those parts of a word

that have a sonority peak (a loudness maximum) that is perceived as a separate syllable. Adults tacitly know that the peak of most syllables is a vowel, they are probably influenced by the conventional spelling, but they are able to discern a vowel before the liquid or nasal sound. This discerned vowel is usually spelled e and might be represented either before or after the syllabic segment. (This is seen in the [*r*], [*k*], [*m*], or [*n*] sounds that occur in English between two consonants or at the end of a word after a consonant). Again, due to the less perceptible vowel sound in this position children rarely represent this vowel (See Table 2.5). Their unconventional spelling applies also to the medial syllabic consonants (see examples in Table 2.5).

Children persist with this "invented spelling" even in words for which a child has learned aspects of standard spelling such as the two "*T*'s in *LITTL* or the *LY* in *SODNLY*. In one spelling activity where the teacher a dictated spelling list, 21 out of 47 first-graders consistently wrote:

BRATHR (*brother*) *TABL* (*table*) *FETHR* (*feather*)

This "invention" appears more frequently and seems to last through more stages of spelling development (to be

discussed in more detail later) than any other of the children's inventions (Read, 1971).

Table 2.5

Morphological examples from Charles Read Monograph, 1971

	Syllabic Segments				
<u>Final position</u>					
TIGR	(tiger)	DIKTR	(doctor)	OVR	(over)
SOGR	(sugar)	AFTR	(after)	OPN	(open)
SMOLR	(smaller)	CANDL	(candle)	WAGN	(wagon)
<u>Medial syllabic consonants</u>					
GRL	(girl)	SODNLY	(suddenly)	BRD	(bird)
HRD	(heard)	SRKIS	(circus)	FRST	(first)

Through these examples we have seen that children choose representations in terms of phonetic properties, such as frontness, affrication, nasality, place and manner of articulation, perceptibility, and syllabicity. These are some of the nomenclature in which the rules of English phonology must be declared. On these premises, children's spelling is an orderly abstract from deduced phonetic detail. Children treat sounds not as a whole

that has not been analyzed, but as items connected by their component attributes and altered in regular, though irrelevant to adult spellers, ways by their contexts. The children's seemingly bizarre spellings actually represent a system of abstract phonological connections of which most adults are unaware, but which would greatly benefit teachers to understand (Read, 1971).

Read gathered large numbers of these "invented" spellings and succeeded in proving that specific errors of substitution and omission were consistent and did not happen by chance. This was the breakthrough discovery in this new line of spelling research that demonstrated that spelling errors provide constructive information about the mental processes of how young children construct hypotheses about spelling and how these hypotheses change change over time and exposure to literacy. This is information that cannot be exposed by only correctly spelled words (Hodges, 1981).

Charles Read's ingenious work revealed that children, even very young children, try to make sense of the world around them by using the knowledge that is accessible to them. In this instance they applied their intuitive information of the sound system of English to

spelling. This also demonstrated that the judgments of children about relationships between speech and writing are qualitatively different from those made by adults, consequently, learning to spell and write, like learning to speak is a developmental process (Hodges, 1981).

Read's work was one of the first major studies that examined why children spell from the perspective of the child. Prior to Read, spelling research was all done from the adult's perspective. This spawned many more studies that give us the current understanding of spelling development as we know it today. (Hodges, 1981).

How Young Children Construct Their Knowledge of Written Language

A group of Piagetian psychologists, working from the idea that kids construct their own knowledge, led by Emilia Ferreiro, began questioning what young children know about written language. By examining children's interactions with literacy events (often without prior instruction), Ferreiro and her colleagues in Argentina began to question the understandings children develop over time of reading and writing (Goodman, 1990).

Ferreiro, a student of Piaget, considered Piaget's

four major stages of cognitive development as she structured her language research: sensorimotor, preoperational, concrete operational, and formal operational (Zutell, 1978). You will note how these stages of cognitive development carry over into the stages of spelling development in current research.

The type of research done today by many researchers in the field of spelling is called developmental research and was influenced originally from the work of the Swiss scholar, Jean Piaget, the great master of developmental psychological research. Developmental research is different from experimental research in that the investigations start by observing children in natural settings. For example to study what children know about spelling English, the researcher examines normal children in their everyday home and school settings and carefully observes what they can do as spellers, following these children over time, noting the progress of their learning (Henderson, 1985).

Through interviewing and asking children questions, Piagetian researchers come to understand the particular concepts that children hold, which ones they are willing to give up, and when they are willing to move on to new

understandings about the written language system they are discovering (Goodman, 1990). At the same time a number of researchers, coming from different fields of study with different orientations, were asking questions about how children come to know written language. Some were discovering through naturalistic research (observing children in the real life settings of home and school), others were collecting data through experimental studies. Researchers from other fields had similar questions and anthropologists, social historians, psychologists, and linguists through ethnographies, experimental designs and formal observational studies began to add their input (Clay, 1975; Ehri, 1980; Goodman, 1992; Read, 1975; etc.).

Some of the research on early literacy has come from a broad group of researchers who came with different beliefs about knowledge and truth, different relationships between teaching and learning, language and learning and purposes and methodologies of research itself. This very diverse group came up with similar information that led to the constructivist theory (Goodman, 1992).

This theory is based on the belief that children

construct their own knowledge about literacy and written language within the context of their own culture, society, family, and socio-economic group, which strongly influences their view and beliefs about who is literate and who may become literate (Goodman, 1990 & Zutell, 1978).

Goodman states that "Written language is invented by children in a literate environment in response to their own social and cultural needs as they interact with the objects of literacy in the society and with the literate members of society" (1990) and that writing develops as a part of these needs through stages of development to reach a conventional standard of writing that all can read. In other words, children who are surrounded by literacy, if left to their own without formal training, would figure out some way to express themselves in writing, perhaps their own system of sound symbols with organization and rules.

This position starts from the perspective that all children construct tacit knowledge about literacy as a cultural form with attitudes and beliefs about literacy as a result of interacting with a world of print. The tenet is that children know the functions that written

language serves, who may participate in its use and what kinds of reading can occur. They know who reads, where people read, what different people use reading for, and who can and cannot read. Children perceive what writing is, who writes, what people write with, and what people use writing for (Goodman, 1990).

This new construct was quite contrary to the previously common supposition that children come to the task of learning literacy with a "blank slate" or as an "empty vessel". Researchers have since discovered that "children have learned many complex and quite wonderful things about written language before they begin to learn to read" (Henderson, 1980). Further research has shown that children progress in their cognizance of words through discernible conceptual stages and that these stages hold with great stability across various methods of teaching, combinations of dialect, and even diverse languages (Henderson, 1980). Another way to say this is that researchers have found a progressing perception of word that appears to be universal for users of alphabetic languages, which attests to the Universal Grammar belief of noted linguist, Noam Chomsky (Ferreiro, 1990; Henderson, 1984; Landsmann, 1990; Pontecorvo &

Zucchermaglio, 1990; Teberosky, 1990).

Templeton (1980) states that "since the publication of Chomsky's *Syntactic Structures*, linguists have pointed out that it is extremely difficult (if not downright impossible) to study language devoid of any reference to an underlying logic". This is shown in the spelling of students who seem to be aware of general patterns that underlie words and are able to make assumptions in order to make meaning of our orthographic system.

As children evaluate the written language, within a context of being surrounded by literacy, they move through stages from beginning writers who draw pictures and then scribble until they can use alphabet symbols, then phonemic correspondence and so on as they move through stages of development in their literacy goal of becoming conventional writers (Henderson, 1985).

Current Spelling Research

After Charles Read's major discovery that there was logic to the inventions of children's early spelling and that this logic moved over time toward a more conventional spelling as their experience with standard English spelling broadened, the next step was for

educational researchers to identify the stages of word knowledge across ranges of children and to map their growth or development across the grades (Henderson, 1985).

This research has been done by many people from many different fields who wanted to know how spelling development effected their group of children. It has shown, without a doubt, that there is a universality to children's construction of spelling, across methods of instruction, levels of intelligence, economic status, dialect and even languages (Henderson, 1985).

The same general developmental sequence of inventions have been found through research in Spanish, French, German, Italian, Hebrew, Portuguese, and Finnish children as have been found for English children. Of course the specific inventions change from language to language (Edelsky, 1987; Ferreiro, 1990; Goodman, 1990; Grossi, 1990; Henderson, 1985; Hudelson, 1980-81; Landsmann, 1990; Pontecorvo & Zucchermaglio, 1990; and Teberosky, 1990).

Edmund Henderson

Among the substantial amount of work now done in this field a great amount has come from a number of

researchers at the University of Virginia under the guidance of the late Edmund Henderson (Barnes, 1989; Bear & Barone, 1989; Beers, 1974; Beers & Henderson, 1977; Beers & Beers, 1981; Ehri, 1980; Gentry, 1987; Gill, 1992; Henderson, 1980 & 1985; Invernizzi & Worthy, 1989; Morris, Nelson, & Perney, 1986; Schlagal, 1989; Schlagal & Schlagal, 1992; Templeton & Scarborough/Franks, 1985; Zutell, 1978 & 1992).

These researchers have looked at the kinds of inventions made by children in free-writing situations in order to distinguish and depict the developmental stages of spelling ability. The information they have discovered and continue to discover strengthens and expands the growing awareness that spelling ability is a complex intellectual and developmental feat (Hodges, 1981).

Due to the constraints of time and space for this project the following is a summary of the findings of research done under the direction of Edmund Henderson and the beliefs that they have come up with relevant to this project.

Young children are conscious of and use phonetic

knowledge in their early spelling efforts. In successive stages, these same children progress toward a more conventional, yet more abstract understanding of the standard English orthography system. Learning to spell is a developmental process that concludes with a much greater understanding of English spelling than its commencement with simple relationships between phonemes and graphemes (Hodges, 1981).

As Henderson states, "The developmental stages of word knowledge, like the evolutionary periods of the language itself, are somewhat arbitrary divisions. Language change is continuous, and continuous, too, is the learner's progress as he or she gradually masters English spelling" (1985). These researchers came up with a categorization of five stages of development in spelling with an explanation of each. A schematic diagram of these stages is shown in figure 2.1.

Stage 1 (referred to as preliterate) encompasses the knowledge of written language that children attain before they begin to learn to read. It is characterized by scribbles and other imitations of writing.

Stage 2 is depicted by spellings that seem to come from a phonetic strategy, called the "letter-name" phase.

Figure 2.1 Stages of Spelling Development

Age 1-7	Age 5-9	Age 8-12	Age 8-18	Age 10-100
Stage 1	*Stage 2*	*Stage 3*	*Stage 4*	*Stage 5*
				Derivational Constancies
Preliterate	*Letter Name*	*Within Word Pattern*	*Syllable Juncture*	
Scribbles	Most sight words spelled correctly	Most sight words spelled correctly	Sight words may or *may not* be transferred to spelling performance	Sight words may or *may not* transfer
Identifies pictures	Invented spelling by letter name	Invented spellings honor short vowels and long vowel markers	Invented-spelling errors occur at juncture and schwa positions	Invented spellings "most frequently misspelled"
Draws				
Imitates writing				
Learns letters				

Episode 1 (Concept of Word)	Episode 2 (Silent Reading)		Episode 3 (Abstract Thought)	
			Toward Maturity in Reading	
Readiness	*Beginning Reading*	*Early Reading*		
Talks	Steady acquisition of sight vocabulary	Semantic support sufficient	Functional vocabulary mastered	Classical vocabulary expands rapidly
Listens to stories	Support for reading necessary	Silent reading established	Common plot complexities mastered	Metalinguistic reasoning applied to form and content
Requests stories	Oral reading	Prosodic oral reading	Basic discipline mastered	
Identifies symbols	Word-by-word reading: prosodic form delayed	Rapid word acquisition		
Recites to print	Basic story form used functionally	Predictions accurate for simple stories and expository material		

Figure Caption

Figure 2.1. The 5 stages of spelling development with explanations according to E. Henderson model (1985).

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Stage 3 consists of the connections between letter patterns to sound and letter patterns to meaning concept and has been titled "within-word patterns".

Stage 4 portrays the synthesis of the consonant-doubling principal and other morpheme connections and is referred to as "syllable juncture".

The last stage, stage 5, derivational constancy, describes the integration of the etymological principle into the more abstract vocabulary of young adulthood (Henderson, 1985).

Advanced Orthographical Concepts

Templeton (1979) and Templeton & Scarborough-Franks (1985) studied the upper grades in order to extend the picture of orthographic development farther. Their studies of derivational pairs (such as *define-definition*) showed the continuing development in older students' tacit and metalinguistic knowledge of patterns of derivational morphology and the graphemic expression of these patterns in semantically-related words. These studies pointed to the common knowledge base that underlies word recognition and spelling or word structure and the logic of combining spelling and vocabulary study at higher grade levels (Templeton, 1989).

Zutell also looked at spelling inventions in derivationally related words (*explain, explanation*). He also looked at other more advanced spelling errors, such as the spellings of consonant doubling (e.g., *hopping, hoping*) and reported a significant correlation between the level of spelling strategy and cognitive development (Zutell, 1978).

Schlagal, realized that little research had been done in the development of more advanced orthographic principles. The earliest levels of literacy through the primary years were well-studied, but there was still a lack in the picture of the advanced levels. He chose to make his contribution to this area (Schlagal, 1992).

Schlagal studied a sampling of errors at the upper grades. This study explored the changing nature of error types as children moved from simpler word forms of the primary grades on to the increasingly complex levels of spelling patterns and meaning to more difficult vocabulary in the conventional writing system of English. Part of this study included his development of six spelling lists entitled the *Qualitative Inventory of Word Knowledge*, designed to represent a continuum of spelling difficulty with specific patterns of errors previously

observed that would provide an ability to study the persistent difficulties for students at different stages of word knowledge. See Appendix B for this inventory.

Schlagal felt that using lists of dictated spelling words to obtain spelling errors to analyze had four main advantages over collecting errors from children's written work. First, the activity of spelling words one by one reduces the number of variables which concern children when writing, i.e. inadvertent errors while the writer's concentration is on word choice, grammatical form or meaning, rather than their best ability to spell.

Second, school children are familiar with the spelling test format which would be more constant than what might be found in a variety of writing that may differ greatly from one teacher to another, not to mention the degree of tolerance variance for required spelling correctness during writing which could also influence which words children would select.

Third, the use of spelling tests allows individual levels of achievement to be easily sorted by accuracy, which may be important to the use of functional levels for classroom instruction (Morris, Nelson & Perney, 1986). Schlagal's fourth reason is the forthright way

patterns of errors may be observed when a list can be created with certain criteria the researcher wishes to study built into it (Schlagal, 1992).

These words were deliberately chosen from word-frequency lists that had also been used as spelling words in the Houghton Mifflin lists. The words were selected based on the likelihood that they provided representative difficulties to students learning at each level, according to the findings of previous researchers, clinical experience, and prediction based on featural analysis of words (Schlagal, 1992).

The results of Schlagal's study showed support for the argument that orthographic knowledge unfolds along developmental lines throughout the elementary years (Henderson, 1980; Schlagal, 1992) and that some orthographic principles appear to stabilize at each developmental plateau, but that a new array of difficulties arises to take their place and allow the focus of the developing speller to shift as fresh demands of new vocabulary create new strategies to learn in the complex system of English spelling (Schlagal, 1992).

Bear and Barone's study (1989) really caught the attention of this author/teacher. They created an easy-

to-use informal spelling assessment that teachers can give at the beginning of the school year to understand their students' level of orthographic knowledge rather quickly (Bear & Barone, 1989). This inventory became the first piece of data for this empirical project.

The basis for this Spelling-by-Stage Assessment is the five stages of spelling and word knowledge described by Henderson (1985) and Schlagal's *Qualitative Spelling Inventory* (1989). A developmental spelling list of twenty words (see Appendix A) developed by Bear and Barone was designed to generate errors typical of each of the five stages of spelling development (see figure 2.1).

The purpose of this inventory was to assess the students' spelling stages, so that teachers can examine patterns of students' errors between the ends of the continuum and plan instruction accordingly (Bear & Barone, 1989). This assessment could also be given again during the school year for a check of development and at the end of the year to place in the student's portfolio to show student growth in spelling.

Analysis of the students' spelling depends on the teacher's knowledge of the stages of spelling. This is acquired easily with very little practice, once the basic

characteristics of each stage are understood.

This inventory is an estimate of the stage of development for each child accomplished by observing the child's correct and incorrect spellings. Then, for purposes of instruction, the teacher examines the patterns of errors more closely to decide a high, middle, and low level within each stage.

Sandra Wilde

Another spelling researcher is Sandra Wilde, whose perspective is grounded in whole language philosophy. Wilde's convictions are established in understanding the learner's conceptualization of his or her language's spelling system as an elaborate schemata, involving increasingly higher levels of organization of thinking as a process of their learning and developing in the knowledge of their language. She envisions knowledge beginning globally and developing through both greater discrimination and greater conception or synthesis, as, for example, her discussion of spelling words in the past tense, "a speller must learn to abstract out the category of past-tense words that end in *-ed* even when that morpheme's pronunciation differs, yet also differentiate those words from others ending in the same sounds in

order to avoid overgeneralization. *Walked, played,* and *wanted* all end with the same letters despite their different pronunciations, and *played, braid* and *fade* all end in */eyd/* but are spelled differently." (Wilde, 1992a).

Wilde believes that the concept-development involved in learning the complex body of knowledge that exists in our spelling system requires learning that is often tacit, below the level of consciousness, like touch-typing and speech. This information is acquired so rapidly that it cannot be consciously directed, therefore these exercises must be under the control of higher-level patterns, which are all that a person is actually conscious of. The research on children's vocabulary capacity and the fact that they can learn anywhere from two to ten words a day, 365 days a year infers that this is far beyond what instruction could rationalize and must therefore reflect a tremendous amount of tacit and incidental learning. We all know how to spell many, many words that we were never explicitly taught (Wilde, 1992a).

Sandra Wilde discusses learning to spell as a developmental progression and mentions moving through the

"scribble stage" into the ability to operate on a "syllabic or alphabetic principle". She also describes invented spelling as a beginning of "phonetic spelling", that technically means phonemic spelling (when children represent their understanding of the phonemes of their language but aren't attempting a detailed phonetic transcription). In addition, Wilde speaks of "letter-name spelling", but nowhere does she seem to write about the stages of developmental spelling, or give them a name to refer to specific parts of the continuum of spelling development. Within her text, Sandra alludes to scribbling, followed by letter combinations forming what the child thinks spells words, then growing to a syllabic hypothesis and developing as did the history of the alphabetic spelling systems. The rest of Wilde's discussion of the developmental cycle of spelling recounts these stages from a descriptive view of the linguistic patterns she has seen in the growth of the spelling in the third and fourth grade Tohono O'odham students she analyzed over a two year period.

Sandra Wilde's perspective is based on the importance of students being involved in lots of reading and writing in order for them to develop and test out

their spelling hypotheses. She suggests four major principles of evaluating spelling: 1) Spelling is to be evaluated on the basis of natural writing rather than tests; 2) It should be evaluated analytically rather than as merely right or wrong; 3) Spelling is looked at in terms of children's strategies rather than in isolation; and 4) The teacher evaluates spelling as an informed professional rather than as a mechanical test scorer in order to decide what kind of instruction would be relevant (Wilde, 1989).

Wilde's suggestions for teaching implications and strategies in spelling will be considered in Chapter 5.

Learning Disabled Students and Spelling Development

It has already been asserted in this paper that spelling is a developmental cognitive process (Henderson, 1980; Rhodes & Dudley-Marling, 1988) that involves not only a rudimentary knowledge of orthographic rules, but also strategic use of those rules. It is also clear now from a knowledge of the literature that analyzes children's spelling errors that unorthodox spelling is an attempt to use orthographic information in a strategic and logical way (see Henderson & Beers, 1980; Read, 1975; Rhodes & Dudley-Marling, 1988). According to the body of

research that exists in spelling of learning disabled (Gerber, 1984) and remedial students this is equally true of them as well as it is true of normally achieving students. These studies (Invernizzi & Worthy, 1989; Rhodes & Dudley-Marling, 1988) have shown that the poor spelling of almost all LD and remedial students looks the same as the spelling of younger, normally achieving students.

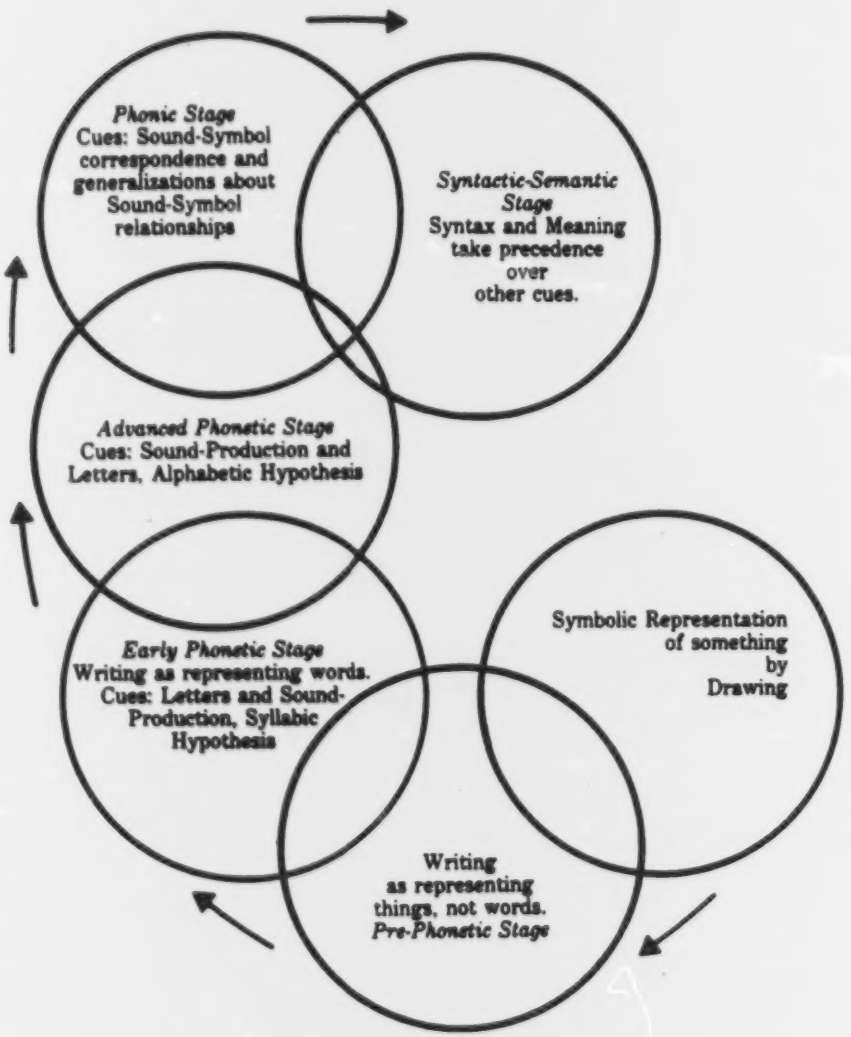
Every student seems to be at a different stage of cognition of language and ability to spell their language (Gerber, 1984; Goodman, 1990; Invernizzi & Worthy, 1989; Morris, Nelson & Perney. 1986).

English Orthography in other Countries

Previously in this chapter it was discussed that researchers in other languages are also studying the acquisition of spelling all over the world. This interest exists in other English-speaking countries, besides the USA. One of the prominent names in current spelling research in Canada is Ethel Buchanan. Buchanan has studied the developmental aspects of the English orthography system. Her five stages of spelling development have different names (see Figure 2.2) and vary a little from the stages previously shown.

Figure Caption

Figure 2.2. A diagram of an overview of Ethel Buchanan's stages of spelling development.


An Overview of Stages of Spelling Development
Phonic Stage
Cues: Sound-Symbol correspondence and generalizations about Sound-Symbol relationships
Syntactic-Semantic Stage
Syntax and Meaning take precedence over other cues.
Advanced Phonetic Stage
Cues: Sound-Production and Letters, Alphabetic Hypothesis
Early Phonetic Stage
Writing as representing words.
Cues: Letters and Sound-Production, Syllabic Hypothesis
Symbolic Representation of something by Drawing
Writing as representing things, not words.
Pre-Phonetic Stage

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Though her titles are different, Buchanan also believes that "within each stage there is a continuum of change, with different students at different parts of the continuum" (Buchanan, 1989). Buchanan's last stage, the Syntactic-Semantic, like Henderson's last stage, (Derivational Constancy) is a stage that we can never completely master or move out of because it contains origins of words and meanings that English speakers should continually be learning, a life-long process.

In Australia, Bolton & Snowball (1993b) are also looking at this notion of learning English orthography as a developmental task, acquired over a period of time, dependent upon the learner's experience with the English written language, something like the way we learn to speak. They suggest viewing the English writing system from a meaning perspective rather than pronunciation and to think of spelling as a problem-solving task that involves students in generating hypotheses about the way the language works.

Native Language Influence

Little research has been done examining spelling as a specific skill in written language skills of linguistically diverse children across languages (Bolton

& Snowball, 1993a). However, both Hudelson (1989) and Edelsky (1982) have referred to the influences of L1 (native language) on the writing in the L2 (second language) and show evidence of the influence of native Spanish speakers' knowledge of Spanish orthography in their early writing in English. It is important to note the difference between **interference** and **influence** of the L1 on the L2. Edelsky (1982) speaks of the two views that may be taken of the L1/L2 writing relationship: 1) L1 as interference with L2 writing or 2) L1 may be used as an application to the L2 writing. Edelsky states that many factors might influence the level of knowledge and hypotheses that are used in L2 writing, such as: 1) the nature of the written systems of the two languages, 2) the writer's proficiency in the L2, 3) the nature of the literacy experience, 4) sociolinguistic constraints, and 5) the nature of the writing process itself (1982).

Because producing written language is such a complex task and a blending of much knowledge, Edelsky feels that what the child tacitly knows about writing--from how to hold a pencil and form letters/symbols to a tacit understanding that writing is social, operates functionally, is inseparable from contextual constraints

and consequences, etc.--is applied to instead of interfering with writing in the second language (1982).

Hudelson notes that skills taught in one language transfer to the second language (1989; Hakuta, 1986) and that learners have learned to read and write only once because what they learned about literacy in the first language transfers or is applied to new literacy situations (Edelsky, 1982, 1986; Hudelson, 1989). Both Hudelson (1989) and Edelsky (1982, 1986) describe young writers using knowledge of whatever linguistic resources are available to them at a particular time, constructing hypotheses and strategies in writing and applying these concepts to the tasks of spelling, segmentation, and punctuation in ESL.

Hudelson (1989) described ESL written products of children as looking very much like those of young native speakers who are learning to write English, exhibiting such features as invented spellings and letter forms, drawings, etc as they reflect the learner's growing understanding of English orthography. She also noted that the child's unique or community pronunciation of certain words, or the child's attention to phonetic cues were reflected in the child's spelling, as well as the

learner's current semantic knowledge of English, which may be quite different from the native speaker's knowledge (1989).

Hudelson, Edelsky, and others (1989) have demonstrated that second language learners are actively involved in figuring out how the writing system of their second language works and that once they have gone through the problem-solving as they first acquired writing ability in their native language "they have learned how to learn." This acquisition of writing meant forming hypotheses about language (L1) writing, including hpyothesis about spelling, trying out and modifying their predictions, as they attended to features of the written system of their native language. Now they can apply this knowledge and those strategies to writing in a second language.

Potter (1981) studied American Indians and the influence their L1 had on their L2 writing. Most of the errors he was able to trace back to the local linguistic features in English in the community, showing that the way the writer pronounces words and/or the grammar spoken will reflect in the written product.

A study was done to look at the use of English by

native Spanish-speaking first graders in a bilingual program in Puebla, Mexico. Nathenson-Mejia (1989) looked at acquiring literacy behaviors and skills in both English and Spanish and found evidence to show that a child uses the knowledge she holds about what writing is for, how writing is created, and the conventions of writing in her first language to help her write successfully in the second language. She found that these student's spellings showed a definite use of their own pronunciations along with their knowledge of letter/sound correspondence in both English and Spanish to speculate and experiment with the phonology and orthography to write what they wanted to say in English.

We will refer to some examples that she found as Spanish speakers transferred their L1 phonology into English orthography. The first example is seen as we compare the English *t/th* vs. the Spanish *d*. The English */t/* and */ð/* sounds are often represented by the Spanish speakers with the letter *d*. The */t/* and */ð/* sounds in Spanish are pronounced more closely to the way English speakers would pronounce a */d/* sound. Some children wrote "*brother*" as "*broder*", "*little*" became "*lidur*", and "*water*" was written "*wader*" (Nathenson-Mejia, 1989).

The English *sh* vs. the Spanish *ch* was also observed. The /š/ sound (as in *shut*) is not a part of the Spanish sound system and many beginning English speakers substitute the more familiar /č/ sound (as in *chain*) which is found in Spanish. The subjects of this study were no exceptions as their pronunciation was reflected in spellings such as "*chort*" (*short*), "*wach*" (*wash*), and "*machrun*" (*mushroom*). One of the children showed awareness that the /š/ exists in English and attempted to use it in the spelling of "*coush*" for "*couch*" (Nathenson-Mejia, 1989).

Nathenson-Mejia (1989) explains that there are fewer vowel sounds in Spanish than in English and that the graphonphonetic correspondence for vowels is more direct than in English. In Spanish, the letters *a, e, i, o,* and *u* are given letter names which correspond exactly to their pronunciation when reading orally. In English, however, the letter *a* may represent various sounds, among them */ei/* as in *day*, */a/* as in *among*, or */ae/* as in *bat*. On the other hand, in Spanish, *a* is always */a/* as in *afuera* (outside), *volando* (flying), or any other word which contains the letter *a*, whether in the initial, medial, or final position. This same concept is true in

Spanish for the other four vowels: *e* is */ɛ/* as in *este* (this), *i* is */i/* as in *feliz* (happy), *o* is */o/* as in *pulpo* (octopus), and *u* is */u/* as in *numbe* (cloud). The Spanish vowels are always pronounced. There is no silent *e* like in English, and two vowels together do not generally change each other significantly. For example, "*avion*" is pronounced */a-vi-joon/* (*ah-vee-yon*).

With so many differences, it is easy to see why English vowels pose a particular challenge to native Spanish speakers. Many creative ways were used by the students in this study to use Spanish orthography to represent the sounds they heard in English. For example, the vowel sound found in the word "*chair*" */cɛr/* matches the Spanish sound for *e*. Therefore, "*chair*" was sometimes written as "*cher*." The English long *e* */i/* matches the Spanish sound for the letter *i*, and so "*the*" with a long vowel sound was often written as "*di*," "*bee*" was written "*bi*" and "*sleeping*" became "*sliping*." These are a few illustrations of the students' creative efforts to reconcile an unknown sound with their own existing sound and spelling systems (Nathenson-Mejia, 1989). Santos & Suleiman (1993) discuss the difficulties of a literate Arabic acquiring English.

They mention linguistic considerations, such as 1) the writing system in Arabic goes from right to left; 2) the way the Arabic letters are written depends upon their position in Arabic words (i.e., beginning, middle, or end of the word); 3) some sounds in English do not exist in Arabic (an example is the substitution of the */b/* for a */p/* "*beople*"); and 4) Arabic has no written vowels, they are delineated by diacritical marks.

Other orthographies could have similar or different problems to pose the ESL speller.

In the beginning, ESL students often seem to find themselves relying more on just two of the three necessary principles to spell the English language--the visual and phonetic. Later they will develop more of the semantic, or vocabulary/meaning to add to their hypothesis of the English orthography. Franklin (1989) saw this in a Hispanic student's acquisition of English spelling when she studied written language in the ESL classroom.

Dialect and Other Factors

As mentioned previously, there has been discussion of the extent to which the way one pronounces English effects the written product. Several studies have been

done on the spelling of Black English dialect speakers (Ney, 1974; Wilde, 1986) which show an influence in the written product to come directly from the pronunciation the learner brings with them. For instance, the pronunciation of the word *ask* in Black English dialect might reflect a spelling similar to *aks*.

Similar orthography errors have been found in speakers of Southern dialects (Ney, 1974) and other dialects that differ from what is termed Standard English.

Spelling Conclusions

English spelling requires a large amount of knowledge, but "children cope with it in systematic and fairly consistent ways" (e.g. Read, 1975; Wilde, 1986 & 1992a).

Conclusively, any endeavor to analyze English spelling or how it is used must also evaluate all the levels of information that it contains (Wilde, 1986).

CHAPTER THREE

METHODOLOGY

The five stages of spelling and word knowledge described by Henderson (1985) seem to connect much of the research on developmental spelling. These stages also serve as the basis of the "Spelling-by-Stage Assessment" done by Bear & Barone (1989) to provide a quick and easy informal spelling assessment that teachers can use to understand each of their students' individual levels of orthographic knowledge and to allow the teacher to group students for word study and directed literacy instruction. The assessment test provided in this study gives an easy to use strategy to group for instructional level of spelling, as well as to begin to understand the stages of spelling development and the spelling errors to look for to understand the spelling cognition of the student.

This study analyzes the spelling, including standard English spelling and the errors, of ESL students both in their classroom writing samples and in test lists in order to determine: a) the spelling stage of development according to Henderson's model; and b) patterns and

similarities in spelling within each basic spelling stage in order to create a schema of categories within the stages. This analysis utilizes the "Spelling-by-Stage Assessment" designed by Bear & Barone (1989) to assess the stage of orthographic knowledge each student is in and then to look at the levels within those stages that Bear & Barone begin to assign in their 1989 article.

The purpose of this study is to investigate how ESL students acquire spelling as compared to research on native speakers spelling acquisition and to create a scheme of categories within the stages that breaks down those stages of spelling development into more specific levels to facilitate curriculum planning in the classroom. This is a qualitative analysis of spelling data.

This chapter briefly describes the collection and methods of analysis of data. Detailed descriptions of analytical procedures are found in Chapter 4.

Hypothesis

ESL students will follow the same developmental pattern of spelling acquisition as native English speaker's stages of spelling development described in the Henderson model (1980) and assessed in the Spelling-by-

Stage Assessment created by Bear & Barone (1989), but will be impacted by the phonology or sound system in their native tongue.

It is also important to note that a certain oral knowledge of the word or ability to pronounce a word usually precedes the correct spelling of the word, as can be seen in dialect studies of spelling (Ney, 1974; Wilde, 1986).

Subjects

The subjects of this study were ten ESL children in a sixth grade public school inclusion classroom with a total of 26 students (including regular education students, gifted students, learning disabled students and the subject population) in the Glendale Elementary School District.

Subjects will be referred to when spoken about individually as V1, for Vietnamese 1; S1 for Spanish 2, etc.

Although the same instruction and testing was done for the entire classroom, the ten ESL students are the subjects of this project. Two of these ESL students were native speakers of Vietnamese and also cousins. Both were born in Vietnam. V1 came to the United States and

began her acquisition of English in school at the age of 5 in kindergarten. V2 just arrived this school year, in November, to learn her first words of English in this sixth grade classroom. She completed six years of school in Vietnam and had begun her seventh grade year, but the family chose to place her in the sixth grade so her cousin could assist her in attending school, adjusting to American schools, and acquiring English quicker. She of course learned to read and write in her native language.

K1 learned Korean in her home, but was born in the United States and acquired English beginning in kindergarten from American schools.

Both of the Asian students who began kindergarten in the United States (V1 and K1) are highly motivated students whose parents feel education is the key to success. They are expected to achieve high career goals through education and good grades. V1 and K1 are also responsible for assisting younger family members with their homework and other family chores. Neither of them learned to read or write in their native language, though they speak it fluently and do translate frequently. Both appear to be fairly fluent English speakers now, but have not yet exited from ESL services.

V1 tends to make more speaking errors in her past tense and plurals, as well as occasional matching of verbs, than does K1. This is probably due to the fact that K1 has been in the United States longer than V1.

The other seven ESL students are from various Hispanic backgrounds. All of these seven Hispanic Students speak English and have attended schools in the USA since Kindergarten. Two of these students (S1 and S2) were placed in an ESL program because there was Spanish spoken in their homes and at the homes of various extended family members. However they learned to speak basically English with some comprehension of Spanish.

The other five Hispanic ESL students (S3-S7), true native speakers of Spanish who heard only Spanish at home, except as older brothers or sisters came home from school with their new acquisition of English (S5, S6, & S7).

S3 and S4 had some bilingual instruction in the primary years and can read and write some in their native language. Both of these students have a low IQ and are also receiving services as Mildly Mentally Retarded in the Learning Disability program. (See Table 3.1 for a list of IQ scores for ESL/LD subjects).

Table 3.1

Weschler Test IQ Scores

Student	Verbal	Performance	Full Scale
Spanish 3	57	63	56
Spanish 4	65	64	62
Spanish 6	97	79	87
Spanish 7	73	87	78

The Wechsler IQ Test is a age-based, full scale verbal performance IQ test administered by the school psychologist at least every two years for students in the Learning Disability Program. The national averages are 90-109. Below 70 is EMR (Educatably Mentally Retarded), below 60 is MMR (Mildly Mentally Retarded) or slow, but relatively literate, per the school psychologist's explanation.

Of the other three Hispanic students, only S5 is not receiving learning disability services.

Unfortunately for S5, S6, and S7 when they started at the Bicentennial school, the Bilingual program had not begun yet.

Last school year in fifth grade when it was

discovered that S6 could not read in either language, he was placed with a bilingual teacher's assistant for Spanish literacy instruction for a few hours per week for about six weeks. At this time he began to read in Spanish and it seemed "to click" and transfer into his English reading. He was then placed in an English only Learning Disability resource room for reading and writing and chose to discontinue the Spanish literacy.

Table 3.2

BSM Scores

Student	Native Language	English
Viet 1	6	6
Viet 2	6	1
Korean 1	6	6
Spanish 1	1	5
Spanish 2	1	5
Spanish 3	5	5
Spanish 4	5	5
Spanish 5	6	6
Spanish 6	5	5
Spanish 7	2	5

The Bilingual Syntax Measure (BSM) is the test given in the Glendale Elementary District (where the subjects are in school), as an oral test in both languages to show their proficiency in each language. BSM scores range from 0 to 6, with 6 being the highest proficiency level. Table 3.2 shows the current BSM scores for these students.

Instruments

Spelling-by-Stage Assessment Inventory. This list of twenty words was designed to quickly according to difficulty of features to assess the student's stage of development according to Henderson's model and was developed by Bear & Barone (1989). (See Appendix A.)

Qualitative Inventory of Word Knowledge. Six lists of selected words constructed by Robert Schlagal (1992) from each of the Houghton Mifflin spelling lists assigned to each grade level. These words were chosen based on their likelihood to provide representative difficulties to students because of the featural analysis of the words (Schlagal, 1992). See Appendix B.

Qualitative Spelling Checklist. A tool devised by Donald Bear (in press) to analyze spelling. It affords the

analyzer a functional method to examine a progression in students' knowledge and to ascertain a point score within each spelling stage for the individual student's level within the stage (Bear, in press). See Appendix C for features examined in the checklist.

Upper Level Spelling Inventory. A more advanced word list created by Bear (in press) to determine spelling strategies, errors, and levels for the higher orthographically knowledgable student. See Appendix D for the ten words used in this study from this list and their scoring analysis examples.

15-Point Spelling by Stage Assessment Scale. Bear & Barone (1989) published a 14-point Spelling-by-Stage-Assessment Scale that the researcher originally used. However, when the improved 15-point Spelling-by-Stage Assessment Scale became available during this study, all scores were switched to the 15-point Scale. (See Figure 4.2 in Chapter 4 for the adapted scale example.)

Procedures

Twelve pieces of data were collected from each of the ten subjects. Five of those were samples of student writing and seven were spelling inventories (lists) taken

from the research of Bear & Barone (1989) and Schlagal (1989). These words were deliberately chosen based on their likelihood to provide representative difficulties to students learning at each stage of development, because of the featural analysis of the words (Schlagal, 1989).

At the end of the data collection and analysis it was determined that three of the students were at such an advanced level that it was difficult to determine their current score, because they did not misspell enough words in the April data. An advanced list was obtained from Bear's (in press) work and ten words from that list were also given to those three students (V1, K1, and S1).

Source #1

The first source is the Spelling-by-Stage Assessment Inventory (Bear & Barone, 1989), given on January 10. See Appendix A for a list of these words.

Source #2

Sample two was a written essay on the first half of the book Old Yeller. The students were reading this book as a whole class literature study. They were given certain criteria and asked to edit their first draft and check their spelling for the final draft as they would be

given a grade in spelling and in reading. This sample was collected in February.

Sources #3-5

The next three samples of data came from an ASAP (Arizona Student Assessment Program) Reading test on poetry, designed as a curriculum instruction in reading poetry and in how to take the ASAP tests. The ASAP tests require a great deal of writing no matter what subject the ASAP is testing. These writing samples were collected in March.

Source #3 is an analysis of page one on that test. Students were asked to make visual images of three places from the point of view of a height looking down. Lots of discussion and setting the stage was done to get their imaginations going. Their goal was to include descriptive words, but nothing was said about spelling.

Source #4 is from Exercise C in the same ASAP and included short answers as well as a paragraph showing comprehension of the poem in the test booklet. Students were asked to proofread after completion.

Source #5 was the last page, Exercise H, on the test and the students were given two pages full of lines to rewrite the meaning of the poem using their own words but

showing that they understood the poem. The section at the end gave a checklist of items to proofread for that included spelling.

Source #6

This student writing sample was also collected in March. It consisted of one entry taken from the student's dialogue writing journal with the teacher. Students were given ten minutes of silent writing time to write about their weekend and anything else they wished to write to the teacher. Nothing was said about spelling or proofreading.

Sources #7-12

These six pieces of data were the the six spelling inventories (*Levels I-VI*) from the *Qualitative Inventory of Word Knowledge* developed by Schlagal (1989). The Schlagal inventory was developed for the elementary classroom to cover the range of spelling stages and skills discovered to be difficult for students as they move through the spelling continuum of knowledge. It was given to the entire classroom to determine where each student's current spelling ability would fall at the conclusion of the analysis. See Appendix B for the complete list.

Students were told this would not be a grade, but was for the teacher to see how they spell and what spelling strategies they know. They were asked to do their best and at the end of each test reminded to proofread each letter of each word, as well as to read the word to see if it said what they wished to spell. These inventory lists were given over a period of days in April.

Source #13

Ten words were selected from the *Upper Level Spelling Inventory* created by Dr. Bear (in press). They were given only to the three more advanced spellers after the analysis at the end of April concluded a lack of errors to determine current stages or spelling strategy needs. See Appendix D for the list.

CHAPTER FOUR

ANALYSIS OF DATA AND FINDINGS

The data to be analyzed here include both the compositions written by the ESL learners and the spelling lists of the students from the inventory tests given to the students. (See Table 4.1 for sources of data analyzed.)

Table 4.1

Sources of Data Analyzed

Months	Type	Source	#
Jan.	IL	Spelling-by-Stage Assessment	1
Feb.	WR	Old Yeller Essay	2
Mar.	WR	ASAP Test/Journal Entry	3-5,6
Apr.	IL	Qualitative Inventory of ...	7-13

IL=Inventory List of preselected words, dictated by the teacher.

WR=Student writing. #=No. of Source, see chapter 3.

A total of 6092 words were analyzed from the 12 or 13 pieces of data samples of each ESL subject.

Some of these words were standard English spellings and some were invented spellings of English words. The researcher was looking for what individual spellers know and what they don't know about the spelling strategies of English.

The first piece of data, a spelling assessment developed by Bear and Barone (*Spelling-by-Stage Assessment*, 1989) was analyzed with the purpose of determining the initial spelling stage of development of each student and to see if similarity in spelling development could be seen between the ESL and Native Speakers of English.

These results showed that 3 of the 10 ESL spellers fell into the Letter-Name Stage, 4 fell into the Within-Word Stage, 1 in the Syllable-Juncture Stage, and 2 in the Derivational Constancy Stage. Compare raw data (Appendix E) with Bear's *Spelling-by-Stage Assessment* (Appendix A) and Bear's *Features of Qualitative Spelling Checklist* (Appendix C) to understand the placement of spellers on different levels and stages of spelling development.

The same data was then examined in order to see patterns and skills or strategies not yet learned in

Table 4.2

Categories and Quantities of Spelling Errors

Categories	L2	L1
Common suffixes (-tion, -ture, -sure, -ate)	24	31
Varied long vowel patterns (ai, oa, ea)	15	7
Vowel reduction in derivational word forms (please/pleasure)	11	10
/l/ endings (le, el, al)	11	11
Short Vowel Sounds (shep/ship)	9	7
Consonant Doublings (cattle, popping)	20	31
Ambiguous Consonants (c/s, s/z)	6	6
Retroflex Vowels (er, or, ar)	5	5
Further Vowel Patterns (ought, aught)	5	7
Qu Combination (queen)	5	2
Inflected Endings (beaches, popping)	3	1
"E-markers" for simple long vowels (drove)	3	2
Incidental affrication (t/d)	1	0
Permutation (b/d, i.e. ded/bed)	1	0
Root word knowledge (fortune/fortunate)	15	12
Articulation (beaseis/beaches)	18	7
Homophones	1	10
Total	103	149

the student's spelling development.

Data #1 was examined further to compare categories and quantities of spelling errors of the ESL students to all of the Native English Speakers in the class in various English spelling skills. (See Table 4.2.)

Table 4.2 shows the quantity of error columns as L1 for Native Speakers of English and L2 for the ESL students.

Spelling categories were determined by the researcher from a combination of research read (Bear and Barone, 1989; Buchanan, 1989; Schlagal, 1992; Wilde, 1986) and errors observed in the data.

Due to lack of space on Table 4.2, further explanations and examples from raw data will be given for the categories of ambiguous consonant errors and consonant doubling errors.

Ambiguous consonant errors are made when two consonants could be responsible for the same phoneme and a speller guesses the wrong one, like the sound of /z/ spelled with an *s* in *clozet/closet*, or the confusion of the *c* and the *s* in *chace/chase*, etc.

Doubling consonant errors can be overgeneralizations of doubling a consonant when not needed, like in the

example of *plesser/pleasure;* or more likely, a lack of double letters when needed as in *catle/cattle*.

There were 10 ESL subjects' errors compared to 16 native English speakers' errors, thus the total errors are not being compared with equal numbers of students in each category. However, the significance is apparent in that the same kinds of English spelling errors were committed at about the same rate, by both ESL students and L1 speakers of English.

Note, that when the near monolingual ESL student (V2) did not know how to spell the word, she would not attempt any spelling on this piece of data. She spelled four of the twenty words, the ones that she knew how to spell correctly in her beginning literacy in English. This would reflect in the ESL total number of errors comparison.

The range of developmental stages of spelling in native speaker students is not what you would typically expect in the sixth grade. There were 0 in the Letter-Name Stage, 6 in the Within-Word Stage, 7 in the Syllable-Juncture Stage, and 3 in the Derivational Constancy Stage.

Part of the reason for the lower developmental

levels include the fact that four of the six native speakers in the Within-Word Stage are also classified and serviced as Learning Disabled. One of the twenty native speakers recently graduated from LD services but still shows perceptual problems in writing and spelling and four others are currently being serviced in the LD program.

There were also three gifted students among the native English speakers in the class. They show up in the highest stage with few errors and help to balance out the overall number of errors of native speakers as compared with the ESL errors in Table 4.2.

Conclusions in this comparison led the researcher to believe that all students, whether native speakers or non-native speakers have a place on the continuum of spelling development and have spelling strategies or at the least, new root words to learn. Often these rules or generalizations are the same that all spellers need. This is observed from the quantity of error types in the high number categories that both groups share, shown on Table 4.2: common suffixes, varied long vowel patterns, vowel reductions in derivational word forms, /l/ endings, short vowel sounds, consonant doublings, and root word

knowledge.

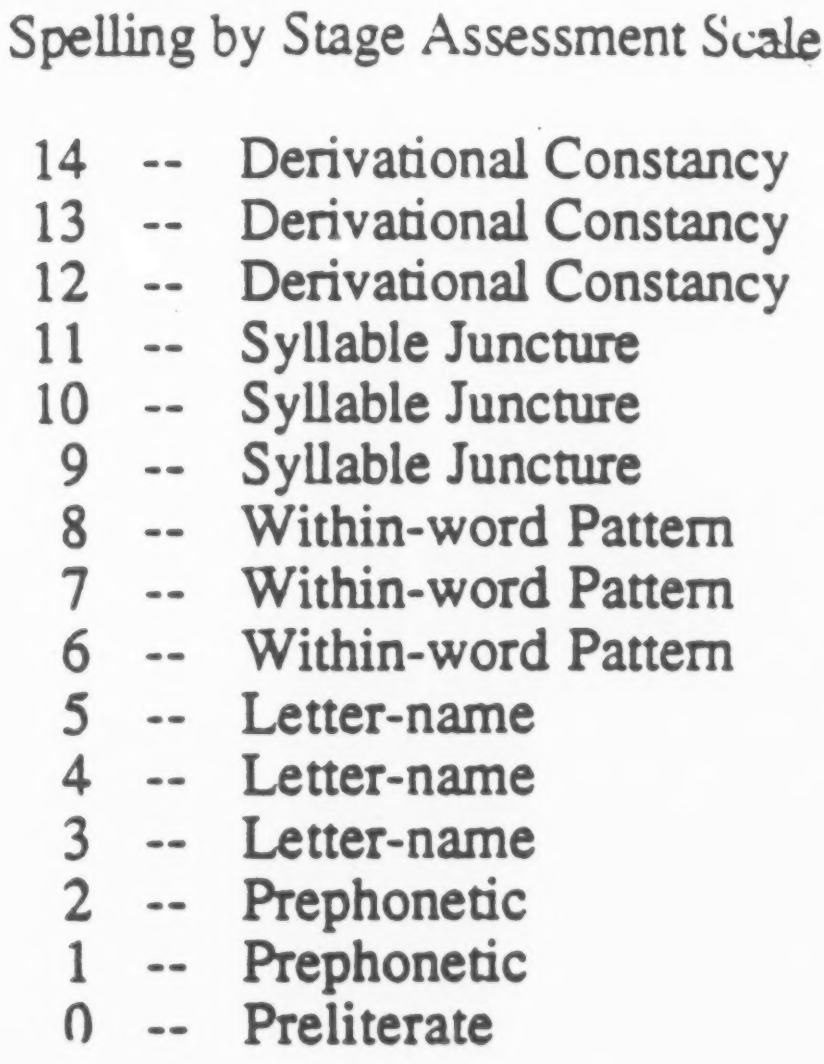
Distinct differences are found in areas which might have been predicted. ESL students have a more difficult time in the area of articulation as they are still learning to pronounce the language. Less experience with the English language may also mean that ESL students have not become as familiar with the homophone alternatives (*seller/cellar*) that exist and confuse the native speakers.

One of the original questions for this project was "What are the categories of spelling development within the basic stages of spelling development?" Realizing that spelling development occurs on a continuum of movement, there must be skills, spelling strategies, or specific patterns within each stage. Knowing this would help a teacher know what to teach students about English orthography.

Bear and Barone (1989) described a Spelling by Stage Assessment Scale to divide each basic spelling stage of development into three levels. (See figure 4.1.) This scale assigned arbitrary numbers from 0-14 to each stage of Henderson's model (1985), equivalent to three levels within each stage. They referred to each level on the

Figure Caption

Figure 4.1 Bear and Barone's initial 0-14 Spelling by Stage Assessment Scale.



scale with the concept of a high, middle, or lower level within each spelling stage. Sometimes a clear, sometimes a vague description of most levels were included. An example would be "Letter-name-4 omits some vowels, but for the most part has a vowel in each syllable, but omits the preconsonant nasal in *'bump'* and occasionally represents some consonant blends and digraphs correctly," (Bear & Barone, 1989).

Less analysis has been done at the more advanced spelling levels and this appeared to be the reason for the more vague descriptions regarding the levels of the advanced stages of spelling in Bear and Barone.

This researcher began to analyze the data collection in order to discover more distinct discriminations and a clearer definition of each category. However a lack of student data in the advanced levels proved this difficult, at best.

Further research led to Bear's current orthography work (in press) in which he has developed an improved *15-Point Spelling by Stage Assessment Scale* (See Figure 4.2.) as well as clearer definitions of each of the 15-point Scale categories. Also included is more information on upper elementary or advanced orthography

Figure Caption

Figure 4.2. Adapted 15 - Point Scale of the Spelling-by-Stage Assessment produced by Bear, et. al.

15-POINT SPELLING BY STAGE ASSESSMENT SCALE

15 -- Derivational Constancy

14 -- Derivational Constancy

13 -- Derivational Constancy

12 -- Syllable Juncture

11 -- Syllable Juncture

10 -- Syllable Juncture

9 -- Within Word Pattern

8 -- Within Word Pattern

7 -- Within Word Pattern

6 -- Letter Name

5 -- Letter Name

4 -- Letter Name

3 -- (Early) Letter Name

2 -- (Early) Letter Name

1 -- Preliterate

words and their analyses.

Using Bear's *Qualitative Spelling Checklist* (Appendix C), ESL student data from January through April was analyzed. This was to first determine ESL student's scores in January on the new *15-Point Spelling-by-Stage Scale* (Figure 4.2) and then again for each month of the study, January through April. This was to ascertain if progression in spelling knowledge of ESL students would compare similarly with the research on native speakers of English spelling development. All ESL students placed on the *Spelling-by-Stage Assessment Scale* in January and showed upward movement on the scale by April, signifying that ESL students acquisition of English spelling moves through similar stages of development as research has shown regarding spelling acquisition of native speakers of English.

Because little qualitative spelling research has been done on ESL students' development specifically, it is important to acknowledge the resemblance between ESL students' scores and similar scores in the research done on native speakers' spelling development (Bear & Barone, 1989; Bear, et. al., in press; Schlagal, 1992., etc.).

Table 4.3

Spelling by Stage Scale Assessment Scores by Month

Student	January	February	March	April
V1	11	11	11	13
V2	3	3	3	5
K1	13	13	13	14
S1	13	13	13	14
S2	9	9	11	12
S3	5	7	7	7
S4	6	6	6	8
S5	8	8	11	11
S6	8	8	9	11
S7	8	11	11	11
	IL	WR	WR	IL

IL=Inventory Lists WR=Student Writing

Individual Student Profiles

Chapter three mentioned that when discussing individual students the letters refer to their L1; for instance, V1=Vietnamese #1, K1=Korean #1, S1=Spanish #1,

etc. The next section gives a summary of the results of individual student's spelling analyzation and some examples. See Table 4.3 for a visual representation of student movement across the *15-Point Spelling by Stage Assessment Scale*.

V1

V1 began in January with an initial Scale score of 11, middle of the Syllable Juncture Stage. She spelled most long vowels, consonant blends, and digraphs correctly, but was still struggling with consonant doubling and plurals and other endings. V1 is still developing in her oral use of plurals and endings in English, so this not surprising. By April she had also progressed to an awareness of less frequent affixes and a beginning knowledge of derived spellings, like pleasure and fortunate that obtain their spellings from their root words. This moved V1 to a Scale score of 13 and into the beginning of the Derivational Constancy Stage. She was one of the three spellers who needed the advanced word inventory to accurately place her in April.

V2

V2 was an unusual subject because she did not yet have a speaking use of the English language when this

study began. Due to her age in life and little experience at hearing, speaking or seeing the English language she was still in her "silent period" until the April data collection. However V2 is very independent and motivated to do well in school so she would attempt whenever she felt comfortable. Allowing that opportunity was important to the "low classroom anxiety" environment the teacher was trying to create.

Her January data showed 4 correct words out of 4 attempts from a list of 20 words dictated. Due to the words she spelled correctly she was scored as a 3, which is the end of the stage referred to as preliterate, or sometimes called Early Letter Name. However she did not score in the typical fashion of the *Qualitative Spelling Checklist,* because there were no developmental errors to study. She did not attempt to spell words that she was not sure she would spell correctly until April. Her score was really more of a hunch by the researcher.

No data was available for February, because she was not yet able to write an essay in English. March's data was slim due to the fact that most of the ASAP writing was her copying words in English which was one of her own first strategies to familiarize herself with English

words. She did have a journal entry because she had recently began writing to the teacher in English. However this was a beginning English writing period for her so she relied mostly on memory to write 27 words, 9 of which she repeatedly used correctly and 3 of which she left out one letter in each word (*understan/understand, no/not, shool/school*). Please note the first examples in parenthesis are always the subject's spelling and the second example represents the standard spelling.

The real data appeared for V2 in April. She was ready to use her new knowledge of English and its spelling strategies to attempt all but 12 of the 180 words on the 6 Schlagal lists. On the first list she spelled correctly 18 out of 20, higher than any other Letter Name subject. The two errors made were relevant either to her perception or perhaps her own articulation (*plane/plant, mud/chap*).

As each list became more difficult, V2 began to use more spelling strategies, usually getting the beginning of the word correct, including letters not used in Vietnamese. She spelled *force* (*four*), showing her knowledge of English consonants. The */f/* sound is only spelled in Vietnamese with a *ph*. However when in medial

position she reverted back to the Vietnamese spelling for */f/* in *traffic* (*straphep*). She also came up with the double *f* in *offered* (*offica*), showing another awareness of English spelling strategies. Many of her attempts were very close including (*needed*) for *needle* and (*unoble*) for *honorable*.

One interesting pattern in V2's spelling is her attempt to spell the suffixes of *-sion* and *-tion*. Consistently she spelled them either *-john, -johns*, or *-ghons*. When questioned about this, the Vietnamese bilingual classroom tutor's response was, "Those are not Vietnamese spellings, it looks like the American name, John." The *gh* is a Vietnamese spelling, but apparently does not correlate with the other letters or that sound. V2 appeared to be using her knowledge of the English spelling of the name John, that has the same point of articulation as the pronounciation of *-sion* and *-tion*, to make guesses about the spelling of those sounds in English spelling.

V2 did show growth on the spelling developmental continuum, as in April her English spelling strategies showed the use of vowels in each word and often using correct consonant blends and digraphs. This moved her

from her score of a 3 in January to a 5 in April. The 5 score put her in the middle level of the Letter Name group.

K1

K1 was unusual because of her super English spelling strategy ability. She consistently spelled corrrectly almost all the words in English whether she was familiar with the word or not. Before the advanced test, K1 has only misspelled 3 of the 700 words analyzed in her spelling. One of those three words was broccoli, which the researcher looked up in the dictionary to be sure of the standard spelling. One of the other two showed lack of knowledge in use of an infrequently used prefix -*ac* in the word *accustom* (*acustom*), which she caught in the spelling of *acknowledge*. The other was a reversal of the *ei* in *conceive*.

From her January data the researcher only knew that K1 was an advanced speller and placed her in the Derivational Constancy Stage. Due to the limitations of the *Spelling-by-Stage Assessment* at the advanced spelling levels, the researcher made another hunch with a score of 13. However their was no discrepancy between levels 13-15 in the January test, so she could have scored higher.

The *Upper Level Spelling Inventory* gave words that K1 finally was stumped on, placing her at level 14. However, the only means to assess which of the 13-15 scoring levels spellers fall in was by the examples of types of spelling in each of the levels. (See Appendix D). There was no basis given for why those examples of misspellings should determine the levels within the Derivational Constancy Stage. The descriptions of each of the levels of the 13-15 scoring scale were all the same, "knowledge of derived spelling, " with different examples given in each level. Number 13 examples were *pleasure* and *fortunate*. The examples for level 14 were *confide* and *civilize* and for scale level 15 was *opposition* and *emphasize* (Bear, in press). Again the limitations of the instrument appear.

According to the instruments however, K1 does show growth on the spelling scale from 13 to 14 from January to April.

S1

S1 also began the study at 13, a veru high stage of spelling development, however her spelling was not consistently as accurate as K1's. She showed knowledge and often used these spelling strategies: derived

spellings, use of less frequent affixes, plurals and other endings, and consonant doublings, but was not always constant in those areas. The researcher would consider her at an early point in level 13.

At this time it should be pointed out, by the comparison of these last two spellers, the concept that spelling is a continuum of development. At any time students may make errors across different stages, because it is a process that takes time to grasp. The act of establishing a child's developmental stage, does not set spelling knowlege "in concrete". Instead it merely allows the teacher to examine a range of errors in some detail (Schlagal, 1992), shedding light on what direction the teacher should follow to guide the student's cognitive awareness of English spelling strategies.

S1's spelling errors included punctuation, leaving out one letter, or were very close to the standard, but demonstrated her growth and knowledge of English orthography. Scoring from the advanced inventory placed S1, in April with signs of growth, at 14.

S2

S2 began in January with a 9, the highest level of the Within-Word Spelling stage. It reflected her

consistently spelling most one-syllable long vowels correctly and also most consonant blends and digraphs. She was still experimenting with long vowel combinations (*flout/float*), and had not grasped the word parts necessary for the Syllable Juncture stage. One example of that was in her spelling of *popping* (*poping*), showing no awareness of consonant doubling.

By April, S2 had begun to grasp word parts and showed knowledge of consonant doubling, plurals and other endings as well as use of less frequent affixes in her correct spelling of *offered, population, suffering, reduction, measure, protective, lately,* etc. She scored a 12 in April, which moved her up to the highest level of the Syllable Juncture stage.

S3

The *Spelling-by-Stage Assessment* scored S3 at Letter Name 5 in January. She accurately spelled 10% of the word list, placing a vowel in each word and beginning to use consonant blends and digraphs, especially in the beginning of words.

By April, S3 was also demonstrating correct spelling of short vowels, preconsonant nasals and an awareness of marking long vowels, which placed her on Letter Name 7.

The research on this student and the following one supports the research on learning disabled spelling development that states that the spelling errors of LD and remedial students look very similar to the spelling of younger, normally achieving students. These students are also on the continuum of spelling development, but in an earlier position than their peers (Nelson, 1980; Michael, 1983; Gerber, 1984; Rhodes & Dudley-Marling, 1988; Invernizzi & Worthy, 1989).

S4

S4 began the study in Letter Name 6, the highest level of that stage, exhibiting her ability to consistently place a vowel in each word and accurately represent frequent consonant blends and digraphs, as well as to often spell short vowels correctly. She had not yet mastered preconsonant nasals. She spelled *bump* (*bop*), showing her feel for the point of articulation of the most salient consonant, but not an awareness of the */m/* sound.

The most L1 transfer surfaced in S4's data, due to bilingual literacy instruction earlier in her education and her continual reading and writing in Spanish. Words that she did not know how to spell in English displayed

a combination of her orthographic knowledge in her L1 (Spanish) and her "budding knowledge" of English orthography, like (*ches*) for *chase*. The Spanish pronunciation of the letter "e" is similar to a long *a* sound in English. The Spanish sound of the "a" as in "*gracias*" is similar to the vowel sound in the English word "*caught*". Couple that with the knowledge that the "*c*" does not represent the */k/* sound in Spanish and it's obvious S4's spelling of *caught* (*kat*) was influenced by her L1.

Her awareness of long vowel patterns and the ability to spell most one syllable long vowels correctly, as well as spelling most consonant blends and digraphs correctly, brought S4 up to a Within-Word 8, the middle of the Within-Word stage by April.

S5

Figuring out English spelling appears to be difficult for S5. Though she has not been identified as a learning disability student, her point scale on the *Spelling By Stage Assessment Scale* parallels that of S6 and S7, both of whom **are** LD students. Perhaps the reason lies in one or more of these facts--they seem to have had the same teachers for most of their elementary school

years, they all started school as monolingual Spanish speakers, they didn't receive bilingual instruction, they are still learning a new language...?

S5 began in January with a score of Within-Word 8, the middle level of the Within-Word stage. Her spelling strategies showed that she could spell short vowels correctly, including preconsonant nasals, she uses but confuses long vowels, and that most of the time she could spell one-syllable long vowels correctly and most consonant blends and digraphs.

One influence of Spanish phonology upon English spelling is seen in S5's spelling of *cattle* (*cadel*). The point of articulation in the */d/* and the English medial */t/* is very similar. The difference is in the force of the voicing found in the */d/* and the lessened force of voicing in the */t/*. This confirms the research of Ferroli & Shanahan (1992) in their study of spelling error patterns of native Spanish-speaking students in ESL. They found that because the need to attend to voicedness was not an issue in Spanish, it became a problem for the Spanish speaker's spelling in English.

By April, S5 had shown progress and was scored in the Syllable Juncture 11 spelling stage, the middle of

that stage. She then showed a more consistent spelling of long vowels, consonant blends and digraphs, an ability to discern when to double consonants, and the use of plurals and other endings.

S6

S6 was just placed in the LD services last school year, second semester. When it was discovered that although S6 appeared to verbalize very well in the classroom in both languages, he could not read in either language and very little of his writing could be read. The school psychologist discovered a perceptual processing problem that had slowed down his reading and writing development.

At the beginning of this study S6 was reading and writing legibly, but spelling of course was not easy for him. The first assessment scored him at Within-Word 8, showing the same spelling skills as S5 in January.

One way he seems to have compensated for perceptual problems in his reversal of *b/d* appears in his writing of capital letters for the spelling of words that contained those letters *Drope* for (*drop*) and *Dive* for (*drive*). No reversals were observed in his 382 word analyzation.

By April S6 was producing increased signs of logical

spelling strategies, as he spelled correctly, such words as *knock, stepping, count, bushel, amusing, offered, impolite,* and *operating*. His April score and skills were equivalent to S5, placing him in Syllable Juncture 11.

S7

S7's history is similar to S6. He began to read and write legibly second semester of fifth grade as he was placed in the LD program. Though S7 did not show the strong symptoms of perceptual problems as did S6 in the psychological evaluation, he still exhibits reversals of *b/d* when he is not careful, such as *dig* for (*big*) in his ASAP page 1 description.

As previously mentioned, the scores and skills for S7 follow the same pattern as those for S5 and S6, bringing him from January in the Within-Word 8 stage to April in the Syllable Juncture 11 stage.

General Discussion

Many miscellaneous observations were made during this study by the researcher. Spelling research is being done by Bear and others regarding the connection between reading and spelling. It was observed during this study that sight words (like *who, how, which, witch,* etc.) the

students did not spell correctly appeared to also be difficult for them to pronounce in isolation (a list of words), but when these same words were in context (in a sentence or passage) they could usually figure them out.

The ability to pronounce words accurately seemed to have a distinct effect on a student's ability to spell the word correctly. This was very obvious on many occasions in working with V2, as she was learning to speak English as well as to write and read it. She would not even attempt to spell a word that she could not pronounce. Words that she could pronounce, but not yet with standard English dictation, often were spelled similarly to the way she said the word, rather than the standard spelling, unless she had already memorized the standard spelling.

ESL writers appear to rely more on their visual memory for how to spell words correctly, because of the fact that they know they do not pronounce words like a native speaker and can not rely on the phonology they hear. This is probably not a conscious concept at this age level.

Class discussions included what students and teacher noticed about spelling a word the way you say it,

especially relevant to dialect differences. On one occasion "the light came on" for a student as he was grading an assignment the students were to edit. He now understood that the reason he kept misspelling the word "*and*" in his writing was because when he said, "*Ricky an I*," he did not pronounce the */d/*. He ran the words together and left off the ending sound of the word "*and*." After that realization it was then easy for him to proofread to catch that error.

Analyzing what the student spells right and what they spell wrong and trying to determine the reasons for the spellings seemed to the researcher to parallel with the "miscue analysis" done by some researchers of reading. Both analyzations are looking for reasoning of the students and what they know and don't know in order to determine what instruction they still need. Both try to ascertain from the viewpoint of the student rather than the adult viewpoint.

Students appeared to achieve a higher scale score on inventory word lists dictated by the teacher. This phenomenon is due to the fact that when writing something they knew they did not know how to spell, they often took the easy way out and reworded it with an easier to spell

word that did not force them to attempt more difficult orthography. However, the inventory lists were designed to see the advanced orthography and forced them to think about those words and higher level skills to try to figure them out.

It is important to remember that just because a student scores at a certain number on the scale does not mean he/she knows all spelling skills and strategies before that point. For example one student scored in the Syllable Juncture stage which would make her ready to combine affixes with root words into new words, but she still did not have a firm grasp of all vowel combinations and spelled *floot* (*float*).

Realizing the meaning relationship in spelling is important for all ages to know, including adults. One of the peers of the researcher was having difficulty spelling the word "*empirical*" correctly in her research study. It seemed to her that it should begin with an "*i*," because of the way it sounds. When this researcher mentioned to her that it comes from the root word "*empire*", her response was "Oh, I hadn't thought of that. Now I will never forget it."

Conclusions

Because little qualitative spelling research has been done on ESL students specifically, it is important to acknowledge the correlation between ESL students placement and continued development on the *Spelling-by-Stage Scale (1-15)*.

Table 4.4

Spelling By Stage Assessment Scores

Student	January	April
Viet 1	11	13
Viet 2	3	5
Korean 1	13	14
Spanish 1	13	14
Spanish 2	9	12
Spanish 3	5	7
Spanish 4	6	8
Spanish 5	8	11
Spanish 6	8	11
Spanish 7	8	11

See Table 4.3 for a complete overall look at the

subjects' levels of spelling developmental growth on the assessment scale over a four month sampling of data.

Table 4.5

Percentage of Spelling Accuracy Comparison to Scores on 15-Point Scale Spelling by Stage Assessment

Student	Writing	Lists	Scores
K1	99.6% (510)	97%	13-14
S1	97% (580)	88%	13-14
V1	97% (946)	83%	11-13
S2	89% (608)	41%	9-12
S5	83% (525)	48%	8-11
S7	80% (377)	23%	8-11
S6	76% (192)	28%	8-11
S4	87% (189)	42%*	6-8
S3	88% (260)	.08%	5-7
V2	64% (77)	22%	3-5

( ) refers to total number of words in student writing, not counting dictated word lists

* Student was absent during the last three Schlagal inventories which skews this score

A quick glance at Table 4.4 will show total growth from January to April on the 15-point scale.

Table 4.5 shows percentage of spelling accuracy in two categories: 1) all independent student writing that was not spelling lists, and 2) the inventory lists. The numbers in parenthesis refer to total number of words the student wrote independently or without being told words to write. There were an additional 200 words dictated by the teacher on the inventory lists (Source #1, Sources #7-12). Table 4.5 also compares spelling developmental scores with percentage of spelling accuracy.

The researcher did not attempt to discern the frustration level of spelling for any students or to underestimate individual student's abilities, thus all inventories were administered to all students, except S4*.

The comparison of developmental spelling scores and percentage of accuracy in writing demonstrates an interesting positive relationship, especially at the higher levels.

An explanation for the high accuracy percentages in the lower levels is due to the fact that motivated students who want their writing to be read only write

words they think know how to spell.

The outcome of this study has established that spelling errors produced by the ESL students in this study follow the parallel of the errors of native speakers of English. The ESL student's spelling is also impacted by cross-linguistic influence of the phonology of their native tongue.

This data is interpreted to support a cognitive-developmental model of spelling acquisition in ESL and native speakers of English. Results of the study show English spelling acquisition for ESL students to be a developmental process similar to Native Speakers of English.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Reading, vocabulary development and spelling are interrelated and mutually facilitating components of a complete language arts program (Zutell, 1978). Thus the ability to create cognition in spelling (to know and apply the rules governing English orthography) must include a well-rounded program of reading, writing and guidance in making cognitive language theories. Teachers and other adults should not spell words for students, because like all language learning, learning to spell requires the active, hypothesis-testing involvement of the learner. Children do not learn written language simply through imitation. Rather they construct their own rule systems which they test and revise depending upon both environmental feedback and their own developmental patterns (Zutell, 1978).

Children's learning to spell involves a gradually increasing understanding of a complex system that consists of knowledge about relations between sounds and letters, about how words look, about higher-level spelling patterns (such as those producing double

consonants), and about relations between meaning and spelling. The spellings of individual words come to be known not as isolated bits of information but as instantiations of the learner's sense of the spelling systems as a whole (Wilde, 1989).

A study of third and fifth graders carved out to examine whether there was a correlation between spelling accuracy and reading ability showed a strong relationship between spelling skill and oral reading ability, but not so much of a correlation between comprehension and spelling (Zutell, 1992).

Another study (Morris, Nelson, & Perney, 1986) determined that better spellers begin the week in the typical "list a week" spelling curriculum knowing 60% or more words on the list before they start, whereas the low-accuracy spellers know less than 40% on a grade level list, meaning they would have more words to learn in a school year. It seems that these same low-accuracy spellers were already deficient in the very orthographic or rule-governed knowledge that underlies the ability to learn new spelling words (Morris, Nelson, & Perney, 1986). These authors feel that their research shows the importance of an instructional level in spelling and

grouping students at spelling ability level in the words they were expected to study and learn.

This researcher feels it important to point out that just studying words at their ability level may not be enough. Many students need help in acquiring an awareness of the rule-governed knowledge that makes up our orthographic system, perhaps by questioning to lead the students to "make those realizations on their own, " or maybe even pointing out the patterns and rules. The important notion is that the teacher must ensure that the student is making those spelling rules and patterns a part of their knowledge so they can use it the next time that concept appears and they can transfer it to a new word they need to spell.

In a study of spelling errors in normal and dyslexic children, dyslexic children's spelling results were compared with matched control partners of similar spelling age, but younger chronological age. The results show the stages of spelling development to be progressing at a slower rate for the dyslexic children, due to a lack of knowledge of the linguistic-semantic orthographic system of English, but fewer errors were found in letter order error within words than any other category. These

results bring doubt on traditional theories of dyslexia, especially in the field of sequencing difficulties or specific visual or auditory-linguistic difficulties in the spelling errors made by the dyslexic children (Nelson, 1980). Similar findings in correlations of spelling achievement age of learning disabled and normal children were found in studies of spelling errors done by Invernizzi and Worthy (1989).

The findings of the present study regarding the results of the comparative error analysis of English spelling features between Native and Non-Native Speakers (See Table 4.2 in chapter 4) reveal a connection of number of errors and types of errors between the two groups in most categories. The same spelling skills found in Table 4.2 (chapter 4) also concur with other research studies which have examined native speaker students' spelling difficulties (Bear & Barone, 1989; Buchanan, 1989; Schlagal, 1992; Wilde, 1986).

The major distinctions of error categories in this study appear in the classifications identified as "Articulation" and "Homophones".

ESL students' articulation errors were four times those of their age level native speakers, when compared

by numbers of students. It would be a logical prediction that ESL students would have more difficulty in the area of articulation as they are still learning to pronounce English. This problem will "fade away" as they become more familiar with the language. ESL teachers should be aware of this as spellings represented in this category will appear "unusual" to standard English.

Homophone errors are higher in native speakers for the inverse reason. Native speaker familiarity with English makes them aware of the homophones allowing confusion about which is the correct spelling, where non-native speakers lack the awareness of the existence of the homophones.

According to the results of the *Spelling-by-Stage Assessment* given in January, ESL students fit into the continuum of spelling developmental stages in a similar fashion to their age-level native speaker counterparts, but perhaps at lower levels. (See Table 5.1 for comparison scores.) This is similar to the discovery regarding a comparison of Learning Disability students to their normal achieving younger counterparts (Invernizzi & Worthy, 1989). The latter study found the pattern and frequency of error types of LD students closely

paralleled the progression of error types described in developmental spelling research in normally achieving populations, but at a lower level.

Table 5.1

Spelling-by-Stage Assessment Comparison

Number of Students in each Spelling Stage in January

Stages	ESL Subjects	Native Speakers
Letter Name	3	0
Within-Word	4	6
Syllable Juncture	2	7
Derivational Constancy	1	3

Teaching Implications

Teaching implications would suggest using the spelling categories discovered through analyzation to have the highest number of errors to plan spelling lessons in. Wilde refers to these lessons as "mini-lessons". They can be taught to the entire class or in small groups, according to need (Wilde, 1992a).

Current spelling research suggests lots of reading and writing as a prerequisite to achieving spelling development at all stages of student spelling abilities. Writing enables students to think about how to spell words. Daily reading and writing should be an important part of the classroom spelling curriculum.

Forcing students to make their own hypotheses through activities that teach students to be aware of the visual parts of words appear to be very important to a successful spelling curriculum for all types of students. One of those teaching strategies is called "word sorting." A series of "sorts" or word categorization activities are prescribed in which students learn about various word features or properties (e.g., phonetic, orthographic, semantic) in a compare/contrast context. Barnes (1989), Henderson (1985), and James (1983), among others, offer more suggestions on how to use "word sorts" and word lists with similar features.

All assignments that allow students to compare similarities and differences in how words sound and look are beneficial to students making the connections that exist in English orthography to be able to spell conventionally.

The above reasoning also infers the importance of not telling a student how to spell a word they don't know, but instead assisting them as they try to figure it out. If they are told how to spell the word with no thought about it, they will not be able to use that cognizance that we want students to have to make those hypothesis that lead them to the correct rules and patterns in English orthography.

Telling the student to go look it up in the dictionary if we have not taught strategies on how to find words in the dictionary is not a help either. Mini-lessons on how to use the dictionary and how to find words when you don't know how to spell them can be very beneficial, especially for those students who don't understand why they can not find the word *psychologist* when they are looking in the "*s*" section of the dictionary.

Learning proofreading skills is a must for all age levels and a concept that teachers should be taught how to teach and then reinforce it regularly in the classroom. Often the writer is so busy editing for meaning and making sure the passage says what they mean that they overlook spelling errors. Proofreading for

spelling errors includes an ability to look at each letter individually and to form a visual picture in the mind of the correct spelling. Sitton (1993, Appendix E) shares proofreading activities.

Students should be taught that the ability to spell in English is based on three main components: 1) phonetic correspondence (how the word sounds and how those sounds match to the letters that make those sounds, 2) visual strategies (how to remember what certain sounds look like and which letter combinations do and don't exist in the language and a subconscious knowledge if the word "looks right") and 3) morphemic competence (knowing how to add affixes to base words to form new words, knowing that words in the same family will have the same spelling pattern--sign, signal, signature, etc.). Then activities to strengthen those three areas should be planned as part of the spelling curriculum.

The relationship between meaning and spelling in English should be a significant factor in an effective spelling program. Because one main component of spelling involves the meaning of words it really is a word-study and could be combined easily with a vocabulary program and/or writing. It is important to teach spelling

awareness across all subjects to facilitate comprehension as well as spelling.

Examples of resources for teachers who wish to learn more about spelling and the types of activities suggested can be found in Appendix F.

This author recommends a complete spelling program for those teachers or districts that lack necessary time to study the research or to develop their own program. Rebecca Sitton's (Appendix F) spelling curriculum and materials are based on developmental spelling research, keeping all types of students in mind and flexible enough to fit all types of teaching styles. This program is available through Sitton (1993) and the Bureau of Education and Research in Bellevue, WA. More information on this program can be found in Appendix F.

ESL Specific Teaching Implications

Remember that oral pronounciation of a word is essential to the ability to spell the word. ESL students do not retain words they have not added to their English lexicon. They may memorize those words for a test, but will not be able to recall them when actually needed in their writing.

Unusual spellings of English are expected and may be

due to phonological transfer or even spelling strategies from the literate ESL student's native language.

ESL students appear to travel through the same basic stages of spelling development as do other native speakers, but may be found at lower developmental levels than their age level native speaking peers. The same type of activities are important for spelling development of all ages, but they may need guidance in discovery of English phonemes/spelling correspondence that their peers have already ascertained. Note the specific skills they are struggling with and teach those.

In an ESL situation, the more time spent on writing and activities that teach metacognition of spelling in English, the better opportunity ESL students have to become successful spellers of standard English.

Conclusions

The following two major conclusions about ESL spellers are as a result of the analysis of these findings. First, a high degree of similarity between ESL and Native English Speakers developmental patterns of spelling acquisition as described in the Henderson model (1980) and assessed by the *Spelling-by-Stage Assessment*

created by Bear and Barone (1989) leads to a perception that spelling in English is a developmental process for ESL students similar to Native English speakers.

Second, a certain amount of *cross-linguistic transfer* is seen in ESL spelling in two areas:
A) ESL students literate in their L1 use strategies from spelling in L1 when they have not yet gained that English spelling skill competency. Sometimes those strategies are the same for both languages, working for a positive transfer. B) ESL spellings reflect differences in pronunciation because of how ESL students perceive English sounds (Example: *understan/understand*). If the sound is similar to their native language, they spell words in L1 like ways (Examples: *kat/caught* and *cadel/cattle*).

This conclusion supports the research by Odlin (1989) regarding the relationship of the phonemic system of a language and the *cross-linguistic influence* of spelling. Odlin (1989) cites studies that demonstrated language transfer through interlingual identifications. The perception of vowels by native and non-native speakers of English signified that non-native speakers are prone to evaluate foreign language sounds largely in

terms of the phonemic inventory of the native language. He continues with mention of positive and negative transfer due to the influence of spelling conventions in the native language (Odlin, 1989). Then he states that in instances of languages such as English that are infamously noted for a difficult orthography, even for native speakers, the errors made by ESL students are often identical to those made by native speakers (Odlin, 1989). This infers that an understanding of the English orthographic system is a developmental process for both native and non-native speakers.

Research done by Ferroli and Shanahan (1992) and by Nathenson-Mejia (1989) investigating spelling error patterns in native Spanish-speaking students of English as a Second Language indicated that whatever conceptual knowledge children had of the spelling system in their native language was applied to English. This phenomenon of spellings that reflect differences in pronunciation is referred to as *cross-linguistic transfer* (Ferroli & Shanahan, 1992).

Another finding that surfaced in the ESL spelling analysis was their seeming tendency to rely heavily on visual memory, especially as they are learning the sounds

of the language and finding difficulty in phoneme discrimination.

Because of the limited subject size and term of this project, further research is needed to validate its claim. This confirms the hypothesis stated regarding the comparing of ESL and native speakers spelling acquisition.

Limitations

Due to the little qualitative research done in the field of ESL spelling, the researcher was "blazing trails" will little comparisons to model or support the methods to set up the research.

Other limitations include the small sample size and length of study, as well as the instruments used. Neither the *Spelling-by-Stage Assessment* or the *Upper Level Spelling Inventory* have been developed enough to be specific for the advanced orthographic stage of Derivational Constancy.

Recommendations for Future Research

A broader perspective of the development of ESL student's spelling acquisition would be obtained in a

long-term study with a larger number of subjects. The research could be similar as it compares native and non-native speakers' stages of spelling development over a year or perhaps longer.

Specific comparison studies of phonology between languages would be helpful for individual instruction and awareness for teachers.

Finally, more research in the advanced orthographic stage of Derivational Constancy to clearly define the differences in the levels 13-15 of that stage.

Summary

In summary, the results found in the present study lead to the following two conclusions: 1)ESL students and native speakers of English acquire specific aspects of English orthography in highly similar progressions, and 2) ESL spellings of English are impacted by *cross-linguistic influence* or *language transfer* from the L1.

The second conclusion has two additional findings: 1) ESL students who are literate in their native language use strategies from spelling in L1 when they are not yet familiar with the English spelling strategies for those sounds, a form of *cross-linguistic influence,* 2) ESL

spellings reflect differences in pronunciation because of the ESL student's native language phonology and the way the ESL student perceives English sounds. If the sound is similar to their native language, they spell words in "L1-like ways."

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APPENDIX A

Bear and Barone's Spelling by Stage Assessment Inventory and Exemplars by Stage

Stages: 1st 10 Words:	*Prephonetic	Letter-name	Within-word Pattern
bed	b bd	bad	bed
ship	s sp shp	sep shep	sip ship
drive	jrv drv	griv driv	drieve draive drive
bump	b bp bmp	bop bup bomp	bump
when	w yn wn	wan whan	wen when
train	j t trn	jran chran tan tran teran	traen trane train
closet	k cs kt clst	clast clost clozt	clozit closit
chase	j jass cs	tas cas chas chass	case chais chase
float	f vt ft flt	fot flot flott	flowt floaut flote float
beaches	b bs baz bcs	bechs becis behis	bechise beches beeches beaches

Stages: 2nd 10 Words:	Within-word Pattern	Syllable Juncture	Deriv Const
preparing	preparng preypering	praparing prepairing preparing	
popping	popin poping	popping	
cattle	catl cadol	catel catel cattel cattle	
caught	cot cote cout cought caught		
inspection	inspshn inspechin	inspecshun inspecsion inspection	
puncture	pucshr pungchr puncker	punksher punture puncture	
cellar	salr selr celr seler	seller sellar celler cellar	
pleasure	plasr plager plejer pleser	plesher plesour plesure pleasure	
squirrel	scrl skwel skwerl	scqoril sqrarel squirle squirrel	
fortunate	forhnat frehnit foohinit	forchenut fochininte fortunet fortunate	

*Note: The Preliterate Stage is not presented here.

APPENDIX B

Schlagal's Qualitative Inventory of Word Knowledge

Level I	*Level II*	*Level III*	*Level IV*	*Level V*	*Level VI*
girl	traded	send	force	lunar	satisfied
want	cool	gift	nature	population	abundance
plane	beaches	rule	slammed	bushel	mental
drop	center	trust	curl	joint	violence
when	short	soap	preparing	compare	impolite
trap	trapped	batter	pebble	explosion	musician
wish	thick	knee	cellar	delivered	hostility
cut	plant	mind	market	normal	illustrate
bike	dress	scream	popped	justice	acknowledge
trip	carry	sight	harvest	dismiss	prosperity
flat	stuff	chain	doctor	decide	accustom
ship	try	count	stocked	suffering	patriotic
drive	crop	knock	gunner	stunned	impossible
fill	year	caught	badge	lately	correspond
sister	chore	noise	cattle	peace	admission
bump	angry	careful	gazed	amusing	wreckage
plate	chase	stepping	cabbage	reduction	commotion
mud	queen	chasing	plastic	preserve	sensible
chap	wise	straw	maple	settlement	dredge
bed	drove	nerve	stared	measure	conceive
	cloud	thirsty	gravel	protective	profitable
	grabbed	baseball	traffic	regular	replying
	train	circus	honey	offered	admitted
	shopping	handle	cable	division	introduction
	float	sudden	scurry	needle	operating
			camel	expression	decision
			silent	complete	combination
			cozy	honorable	declaration
			graceful	baggage	connect
			checked	television	patient

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APPENDIX C

Qualitative Features of Spelling Checklist

How many words were spelled correctly? Report as a percentage of total correct to total spelled: _____

NUMBERS BELOW REFER TO THE SPELLING-BY-STAGE SCALE (1-15)

LETTER NAME

4 A vowel in each word.
Yes __ Often __ No __

5 Consonant blends and digraphs in SHIP, DRIVE and WHEN, TRAIN, CHASE and FLOAT.
Yes __ Often __ No __

6 Short vowels spelled correctly. [BED, SHIP, WHEN]
Includes preconsonantal nasals. [BUMP]
Yes __ Often __ No __

WITHIN WORD PATTERN

7 Uses but confuses long vowels [DRIEV, TRAIN, FLOTE, BEECHS] __ Often __ No __

8 Spells many single syllable long vowels spelled correctly [DRIVE, TRAIN, FLOAT, BEACHES], Still experiments with long vowel patterns [DRIEV, TRAIN, FLOTE, BEECHS] and Spells most consonant blends and digraphs correctly [SHIP, DRIVE and WHEN, TRAIN, CHASE and FLOAT]
Yes __ Often __ No __

9 Spells long vowels, consonant blends and digraphs, and low frequency consonant blends and digraphs [CAUGHT]
Yes __ Often __ No __

SYLLABLE JUNCTURE

10 Consonant doubling.
[POPPING, CATTLE, SQUIRREL, CELLAR]
Yes __ Often __ No __

11 Plurals and other endings.
[BEACHES, POPPING, PREPARING]
Yes __ Often __ No __

12 Less frequent affixes.
suffixes -- [PUNCTURE, CELLAR, PLEASURE, FORTUNATE, CONFIDENT, CIVILIZE, FLEXIBLE]
prefixes -- [PREPARING, CONFIDENT, OPPOSITION]
Yes __ Often __ No __

DERIVATIONAL CONSTANCY

13 Knowledge of derived spellings.
[PLEASURE, FORTUNATE]
Yes __ Often __ No __

14 Knowledge of derived spellings.
[CONFIDE, CIVILIZE]
Yes __ Often __ No __

15 Knowledge of derived spellings.
[OPPOSITION, EMPHASIZE]
Yes __ Often __ No __

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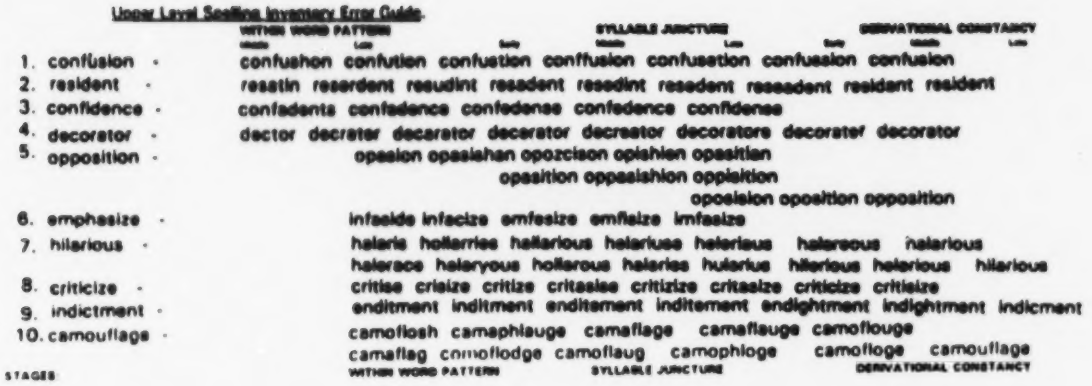
APPENDIX D

Upper Level Spelling Inventory Error Guide


Upper Level Spelling Inventory Error Guide
WITHIN WORD PATTERN
SYLLABLE JUNCTURE
DERIVATIONAL CONSTANCY
Middle
Late
Early
1. confusion confushon confution confusion conffusion confusetion confusion confusion
2. resident resatin reserdent resudint resadent resedint resedent reseadent resident resident
3. confidence confidents confidence confidense confidence confidense
4. decorator dector decrater decarator decerator decreator decoratore decorater decorator
5. opposition opesion opesishan opozcison opishion opesition
opesition oppesishion oppisition
opoesion opositon opposition
6. emphasize infasize infecize emfesize emfaize imfesize
7. hilarious halaris hollarries hallarious halariuse helerieus halareous halarious
halerace helaryous hollerous helaries hulariue hilerious helerious hilarious
8. criticize critise crisize critize critasise critizize critasize criticize critisize
9. indictment enditment inditment enditement inditement endightment indightment indicment
10. camouflage camoflosh camaphlauge camaflage camaflauge camoflouge
camaflag camoflodge camoflaug camophloge camofloge camouflage
STAGES
WITHIN WORD PATTERN
SYLLABLE JUNCTURE
DERIVATIONAL CONSTANCY

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APPENDIX E

Raw Data

V1	S1	S4
1. bed	1. bed	1. bed
2. ship	2. ship	2. shep
3. drive	3. drive	3. drive
4. bump	4. bump	4. bop
5. when	5. when	5. when
6. train	6. train	6. tren
7. clothset	7. closet	7. closet
8. chase	8. chase	8. ches
9. flowt	9. float	9. flot
10. beaches	10. beaches	10. benches
11. preparing	11. preparing	11. prepering
12. popping	12. popping	12. poping
13. cattle	13. cattle	13. carlo
14. caught	14. caught	14. kat
15. inspection	15. inspection	15. espesing
16. punchure	16. puncture	16. poncher
17. celler	17. cellar	17. saler
18. plesure	18. pleasure	18. plecher
19. squirl	19. squirrle	19. squler
20. fortunite	20. fortunet	20. forchnet

Appendix F

A Brief Annotated Bibliography on

Teacher's Guides to Teaching Spelling

Through Developmental Methods

Bolton, F. & Snowball, D. (1993). *Ideas for spelling.* Portsmouth, NH: Heinemann Educational Books, Inc.

Provides a rationale for the teaching of spelling based on the nature of the English language and the natural development of children's spelling ability. Detailed strategies and activities are provided for helping children at all stages of spelling development to become more competent spellers--from beginning spellers to those who have reached a level of competency in the intermediate grades. Aspects such as the development of word lists, the evaluation of the spelling progress, and considerations for English as a Second Language learners are also dealt with.

Bolton, F. & Snowball, D. (1993). *Teaching spelling: A practical resource.* Portsmouth, NH: Heinemann Educational Books, Inc.

This book builds on *Ideas for Spelling* (Heinemann, 1993). Part 1 examines the basis for teaching spelling, analyzes the strategies and skills used by competent spellers and provides specific information about the management of the class program based on students' writing needs at all levels. Part 1 also considers the merits of various types of assessment. Part 2 includes and exploration of sound/symbol relationships, spelling patterns, derivatives, prefixes, suffixes, generalizations, shortened words, the use of apostrophes and alternative spellings. These chapters include extensive resource lists of various types of words. A wide variety of activities are suggested to help the teacher develop students' knowledge and understanding of particular aspects of the written language to generate apositive attitude towards spelling and a desire to continue development of spelling ability.

Buchanan, E. (1989). *Spelling for whole language classrooms.* Winnipeg, Canada: Whole Language Consultants.

This book provides a description of each developmental stage of spelling, the major concept students hold at each stage, examples of student's spelling at each stage and instructional strategies and activities to do at each stage to help students process and develop their concepts about how to spell standard English. It also includes a chapter on spelling evaluation and how to analyze student spelling.

Gentry, J. (1987). *Spel... is a four-letter word.* Portsmouth, NH: Heinemann Educational Books, Inc.

This small easy-to-read paperback is a good introduction to why teachers need to know that spelling is a constructive developmental process and what basic teaching strategies it takes to develop these stages in students. Included in this book are examples, spelling rules for teachers to teach, introductory letters to teachers, students, parents, and even the school board when a teacher is ready to change the spelling curriculum.

Henderson, E. (1985). *Teaching spelling.* Boston: Houghton Mifflin Company.

This text takes a developmental approach to teaching children to spell English with the belief that all children can learn to be competent spellers but that they do so over time and developmental stages. It is the result of wide-ranging research in developmental psychology and linguistics and in educational applications of that research. This book was designed as a supplementary text for beginning teachers of reading and language arts and also as a handbook for experienced teachers. It contains practice exercises, planning models and teaching models across the grades, as well as supplementary lists of words illustrating basic spelling orders.

Hudson, C. & O'Toole, M. (1991). *Spelling: A teacher's guide.* Victoria, Australia: Australian Print Group.

The material contained in this book aims to present practical ideas and suggestions to help children become efficient spellers. It is organized into two major sections: 1) the theoretical basis and its implications for teaching and 2) practical ideas and suggestions for learning activities.

Rhodes, L. & Dudley-Marling, C. (1988). *Readers and writers with a difference: A holistic approach to teaching learning disabled and remedial students.* Portsmouth, N.H.: Heinemann Educational Books, Inc.

Written to provide teachers of students for whom literacy learning has been a struggle to offer a more meaningful, purposeful approach to reading and writing. Includes a combination of a discussion of theory and instructional strategies relevant to learning disabled and remedial students and their literacy development.

Sitton, R. (1993). *Increasing student spelling achievement, not just on tests, but in daily writing across the curriculum.* Spokane, WA: Rebecca Sitton.

This book and workshop presented the easiest, consistent, most logical, and complete method of teaching spelling based on spelling developmental research, but also taking into consideration a realistic picture of classroom and teacher time constraints.

The author also stresses the importance of placing responsibility of spelling correctly in student writing upon the student in order to achieve the outcome of standard spelling in writing that the business community desires for employees.

Methods include teaching teachers how to teach accurate proofreading to all students and activities to meet all types of spellers, from the most challenged spellers to gifted spellers. All this is provided in a method that should not stress out a teacher's organizational abilities.